PEARSON NEW INTERNATIONAL EDITION

Patternmaking for Fashion Design

Helen Joseph-Armstrong

Fifth Edition

Pearson New International Edition

Patternmaking
for Fashion Design
Helen Joseph-Armstrong
Fifth Edition

PEARSON

Pearson Education Limited
Edinburgh Gate
Harlow
Essex CM20 2JE
England and Associated Companies throughout the world

Visit us on the World Wide Web at: www.pearsoned.co.uk

© Pearson Education Limited 2014

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without either the prior written permission of the publisher or a licence permitting restricted copying in the United Kingdom issued by the Copyright Licensing Agency Ltd, Saffron House, 6–10 Kirby Street, London EC1N 8TS.

All trademarks used herein are the property of their respective owners. The use of any trademark in this text does not vest in the author or publisher any trademark ownership rights in such trademarks, nor does the use of such trademarks imply any affiliation with or endorsement of this book by such owners.

ISBN 10: 1-292-02481-X
ISBN 13: 978-1-292-02481-3

British Library Cataloguing-in-Publication Data
A catalogue record for this book is available from the British Library

Printed in the United States of America

Table of Contents

1. Patternmaking Essentials for the Workroom
Helen Joseph Armstrong **1**

2. Form Measurements and Figure Analysis
Helen Joseph Armstrong **25**

3. Drafting the Basic Pattern Set
Helen Joseph Armstrong **43**

4. Dart Manipulation
Helen Joseph Armstrong **77**

5. Designing with Darts
Helen Joseph Armstrong **111**

6. Stylelines
Helen Joseph Armstrong **137**

7. Added Fullness
Helen Joseph Armstrong **151**

8. Yokes, Flanges, Pin Tucks, and Pleat Tucks
Helen Joseph Armstrong **167**

9. Contouring
Helen Joseph Armstrong **185**

10. Collars
Helen Joseph Armstrong **209**

11. Built-Up Necklines
Helen Joseph Armstrong **237**

12. Cowls
Helen Joseph Armstrong **247**

13. Skirts/Circles and Cascades
Helen Joseph Armstrong **273**

14. Sleeves
Helen Joseph Armstrong 349

15. Kimono, Raglan, Drop Shoulder, and Exaggerated Armholes
Helen Joseph Armstrong 383

16. Buttons, Buttonholes, and Facings
Helen Joseph Armstrong 417

17. Plackets and Pockets
Helen Joseph Armstrong 429

18. Dresses Without Waistline Seams
Helen Joseph Armstrong 447

19. Strapless Foundation and Interconstruction
Helen Joseph Armstrong 473

20. Patternmaking for Bias-Cut Dresses
Helen Joseph Armstrong 497

21. Shirts
Helen Joseph Armstrong 515

22. Women's Jackets and Coats
Helen Joseph Armstrong 537

23. Men's Wear
Helen Joseph Armstrong 573

24. Capes and Hoods
Helen Joseph Armstrong 625

25. Knock-Off Copying Ready-Made Designs
Helen Joseph Armstrong 641

26. Pants
Helen Joseph Armstrong 657

27. Knits---Stretch and Shrinkage Factors
Helen Joseph Armstrong 723

28. Knit Top Foundations
Helen Joseph Armstrong 733

29. Activewear for Dance and Exercise
Helen Joseph Armstrong 745

30. Swimwear
Helen Joseph Armstrong 767

31. Introduction to Childrenswear
Helen Joseph Armstrong 803

32. Drafting the Basic Pattern Set: Measurement Taking and Standard Measurement Charts
Helen Joseph Armstrong **811**

33. Collars, Sleeves, and Skirts
Helen Joseph Armstrong **825**

34. Dresses and Jumpers
Helen Joseph Armstrong **839**

35. Tops
Helen Joseph Armstrong **851**

36. Pants and Jumpsuits
Helen Joseph Armstrong **877**

37. Bodysuits, Leotards, Maillots, and Swimwear
Helen Joseph Armstrong **901**

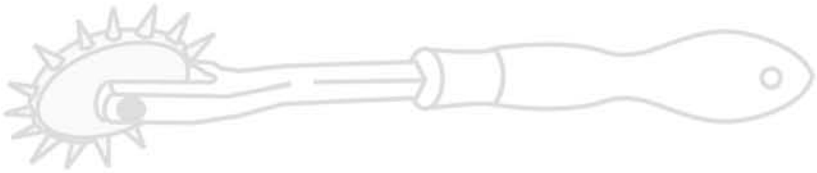
38. Bibliographic Credits
Helen Joseph Armstrong **913**

Index **915**

This page intentionally left blank

Patternmaking Essentials for the Workroom

PATTERNMAKING TOOLS
  Functions of Patternmaking Tools
  Guide to Reading Ruler Increments
  The Importance of Math
PATTERN PAPER
PATTERNMAKING TERMS
FABRIC TERMS
PATTERN GRAINLINE
DART
BLENDING, TRUEING, AND EQUALIZING
SPECIAL INFORMATION
  Balance Line Terms
  Styleline Guides
THE WAY WE WERE
PRODUCTION TERMS
BODY SCANNING
COMPUTER COMPANIES
LAST, BUT NOT LEAST
E-FIT SIMULATOR IS BORN
APPAREL PRODUCT DEVELOPMENT
COST SHEET
PATTERN CHART
DESIGN SPECIFICATIONS SHEET



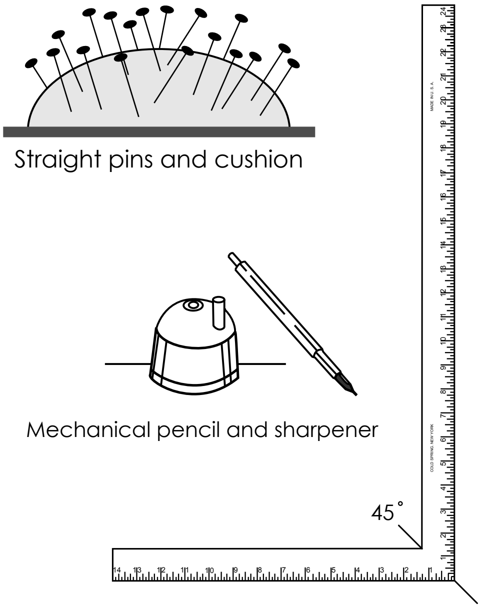
From Chapter 1 of *Patternmaking for Fashion Design,* 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

PATTERNMAKING TOOLS

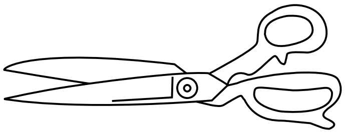
To work efficiently, the patternmaker must have the proper tools and supplies. To communicate effectively in the workroom and to minimize errors due to misunderstanding, the patternmaker should know and understand terminology. This chapter introduces tools, supplies, and definitions of terms used in industry.

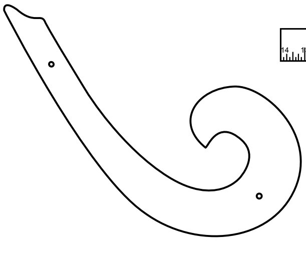
The professional patternmaker arrives on the job with all tools required for patternmaking. Each tool should be marked with an identity symbol and transported in a carrying case. Tools may be purchased from apparel supply houses, art stores, department stores, and yardage stores. Specialized tools, such as a rabbit punch used to punch pattern holes for hanger hooks, are generally supplied by the manufacturer.

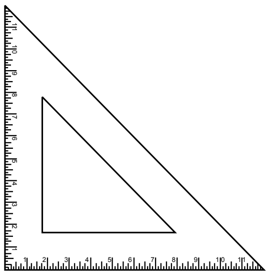
1. *Straight pins:*
   - ___ Dressmaker silk #17 for draping and fittings.
2. *Straight pin holder:*
   - ___ Pincushion, or magnetic holder for wrist or table.
3. *Scissors:*
   - ___ Paper scissors.
   - ___ Fabric scissors.
4. *Pencils and pens:*
   - ___ Mechanical pencil and sharpener. (Use #4-H lead for pattern work.)
   - ___ Red and blue colored pencils to identify pattern changes. Black, green, red, and blue felt-tip pens for pattern information.
5. *Rulers:*
   - ___ Flex general rule—1/2 × 12-inch (very accurate).
   - ___ 36-inch ruler.
   - ___ 18 × 2-inch plastic rule (flexible for measuring curves).
   - ___ Tailor's square—24 × 14-inch metal ruler with two arms forming a 90° angle that measures, rules, and squares simultaneously.
   - ___ Triangle with measurements to square lines.
6. *Curve rules:*
   - ___ French curve, Deitzgen #17 is one of several curves used for shaping armhole and neckline.
   - ___ Sleigh curve, shapes necklines, armholes and other curves, pockets, collars, and cuffs.
   - ___ Hip curve rule to shape hipline, hem, lapels.
   - ___ Vary form curve to blend and shape armhole necklines.

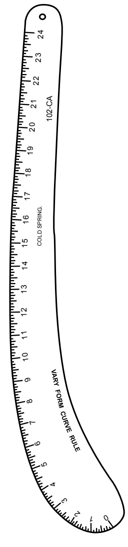

Straight pins and cushion

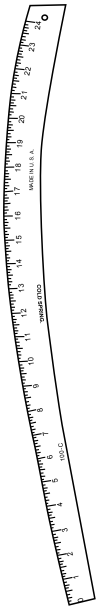
Mechanical pencil and sharpener

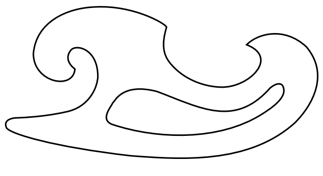



French curve


Square/triangle

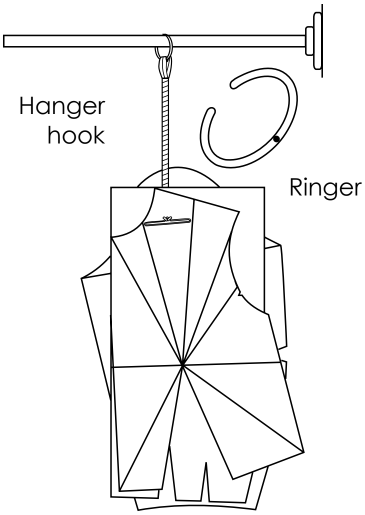

Vary form curve


Hip curve rule


Sleigh curve

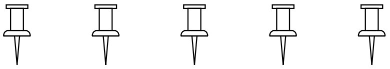
7. *Hanger hooks or ringers:*

___ To hold patterns together while hanging on rods.



8. *Push pins:*

___ For pattern manipulation and transferring muslin patterns to paper.



9. *Stapler and remover:*

___ Prevents pattern slippage when cutting several plys of paper together.

10. *Magic mend scotch tape:*

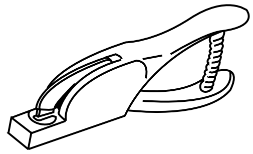
___ To mend pattern work.

11. *Black twill tape:*

___ Placement of stylelines on form and to hold ease in place.

12. *Notcher:*

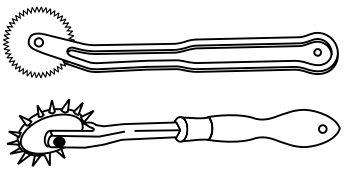
___ Cuts a 1/4 × 1/16-inch opening at the pattern's edge to indicate seam allowance, center lines, and ease notches and to identify front and back of patterns.



13. *Tracing wheels:*

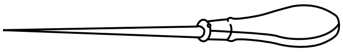
___ Pointed wheel transfers pattern shapes to paper.

___ Blunted wheel is used with carbon paper to transfer pattern shapes to muslin.



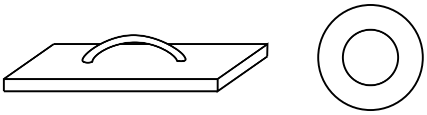
14. *Awl:*

___ Pierces 1/8-inch hole in the pattern to indicate the ending of darts, pocket, trim, and buttonhole placements.



15. *Metal weights (several):*

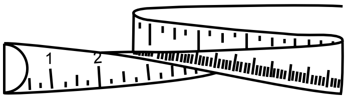
___ Hold patterns in place for tracing and marking.

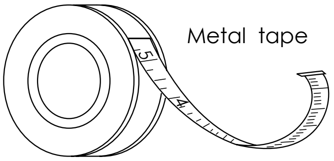


16. *Measuring tape—60 inches long:*

___ Metal-tipped, linen or plastic to measure the form. Metric is on the other side.

___ Metal tape 1/4 inch wide inside a dispenser. It is convenient, flexible, and very accurate.



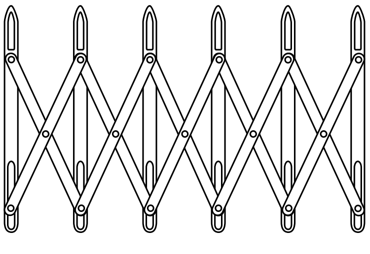


17. *Tailor's chalk:*

___ Clay, chalk, chalk wheel, or chalk marking pencils in black and white. Use for marking adjusted seams and stylelines.

18. *Simflex folding measure:*

___ Spaces button/button holes, pleats, tucks.



Functions of Patternmaking Tools

Tools provide the symbols used in marking fabric and patterns in the production of garments. Symbols are like a silent language that are understood among the designer, seamstress, grader, marker maker, and production personnel. Without these symbols, garments would not be cut or stitched with accuracy. Missing or misplaced symbols disrupt the flow of production.

Notch Tool

The notch tool has a cutting blade that slips into the pattern's edge, leaving an 1/8- to 1/4-inch cut-out. As the patterns are traced, the notch cut-outs are marked on the fabric. The cutter slashes the fabric at these locations. The seamstress assembles and stitches the garment parts following the notches (Figure 1).

The notch is used to indicate:

- Seam allowance (Figure 2).*
- Center lines.
- Identification of front and back patterns.
- Correct assembling of similar pattern parts (Figure 3).
- Correct location of joining parts.
  Gather and ease control (Figure 2).
  Dart intake (Figure 1).
- Shoulder tip of extended shoulders.
- Waistline of one-piece garments.
- Zipper stopping point.
- Fold-back for hems and facings.
- Placement for inserts.
- Tension release (acute curves).
- Inverse corners (Figure 2).

*Unless instructed otherwise, 1/4-inch seams are not notched. Overlocked seams are generally not notched.

Figure 1

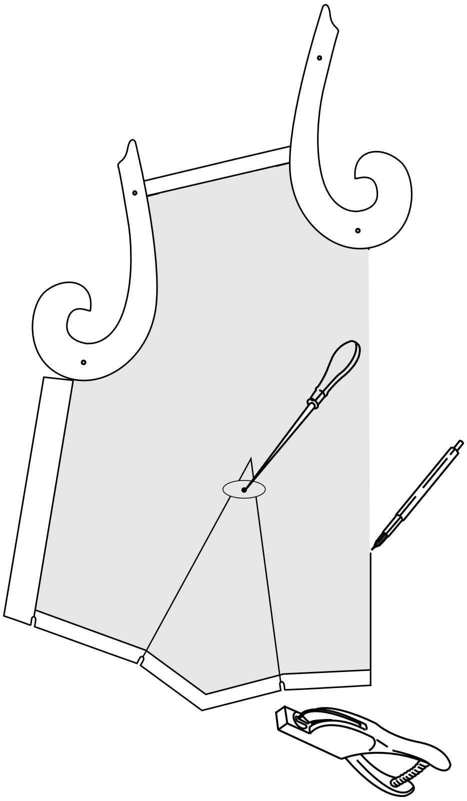
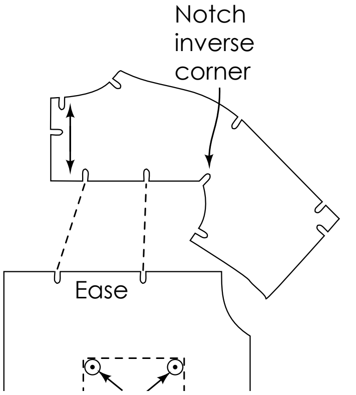


Figure 2



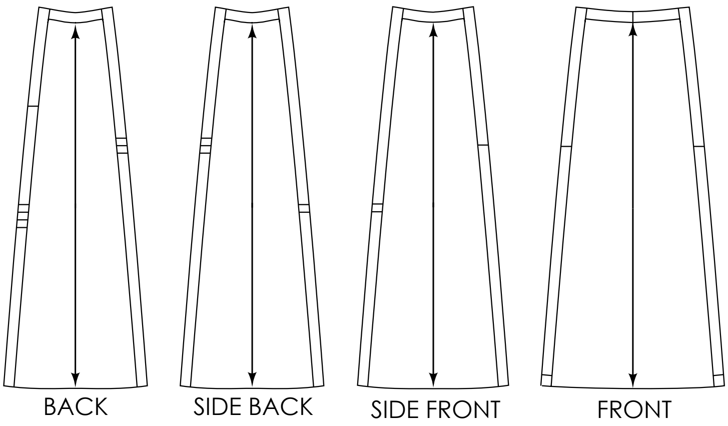
Punch/circle pocket placements

Awl Punch and Circle

The awl puts a hole (or mark) on the pattern. The hole is circled to notify the marker maker that a drill is needed to burn a hole in the fabric, which damages the garment. That is why the placement of the drill hole is always inside the finished seam (to cover the damage in the fabric).

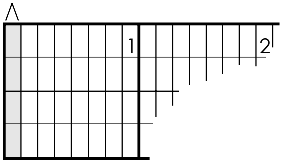
- Dart back-off point (Figure 1).
- 1/8 inch in from corners.
- Buttonholes and buttons.
- Trimming.
- Pocket placements.

Figure 3

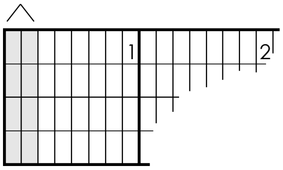


Guide to Reading Ruler Increments (based on 1/8 inch*)

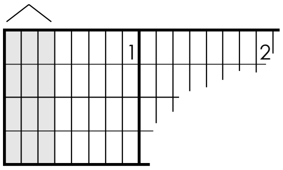
1 x 1/8 = 1/8 "



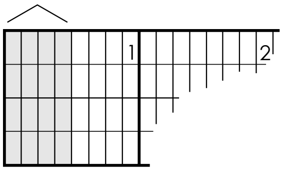
2 x 1/8 = 1/4 "



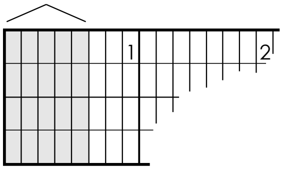
3 x 1/8 = 3/8 "



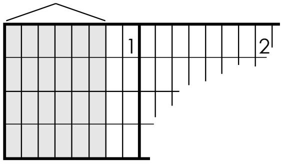
4 x 1/8 = 1/2 "



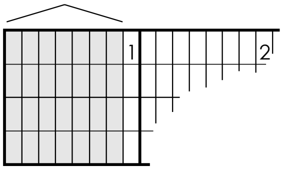
5 x 1/8 = 5/8 "



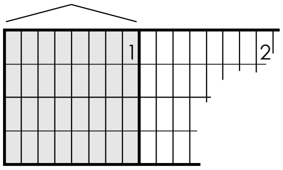
6 x 1/8 = 3/4 "



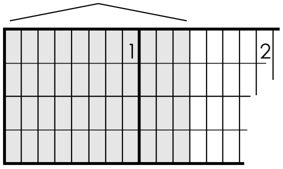
7 x 1/8 = 7/8 "



8 x 1/8 = 1 "



11 x 1/8 = 1 3/8 "



YARDAGE IN INCHES
9 " = a quarter yard (1/4)
12 " = a third yard (1/3)
18 " = a half a yard (1/2)
24 " = 2/3 of a yard
36 " = 1 yard

* 1/16 " = one- half of 1/8 "

Decimal and Fraction Conversion

.063 = 1/16
.125 = 1/8
.188 = 3/16
.25 = 1/4
.313 = 5/16
.375 = 3/8
.438 = 7/16
.5 = 1/2
.563 = 9/16
.625 = 5/8
.750 = 3/4
.875 = 7/8

The Importance of Math

Why should you have sufficient math skills to read measuring devices: rulers, measuring tape, fractions, and percentages? The answer is, to be eligible for hire! In the fashion business, every phase of production relies on the math skills of the associates to stay in business.

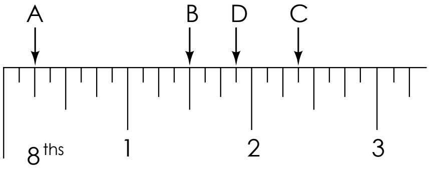
For hire, you should be able to:

a. Take and record measurements of the form to the exact 1/16 inch.
b. Compute yardage for single and mass-produced garments.
c. Provide the exact measurements on spec sheets for the production of garments.
d. Apply math instructions from a work sheet to the developing project.
e. Operate a computer.

Test Your Math Skills

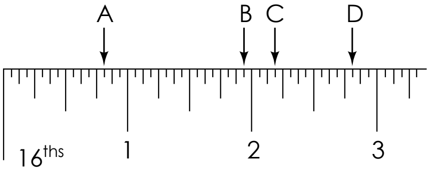
Write answers in the spaces provided. Also give common denominators. Check answers at the end of the chapter.

Test 1 Measure the distance between letters given, starting from A; use 1/8-inch increments.



A _____ B
B _____ D
A _____ D
D _____ C

Test 2 Measure from the start of the ruler to A. A to B, B to C, and C to D, at 1/6-inch increments.



A _____
B _____
C _____
D _____

PATTERN PAPER

Pattern paper has code numbers to indicate its weight from heavy to light:

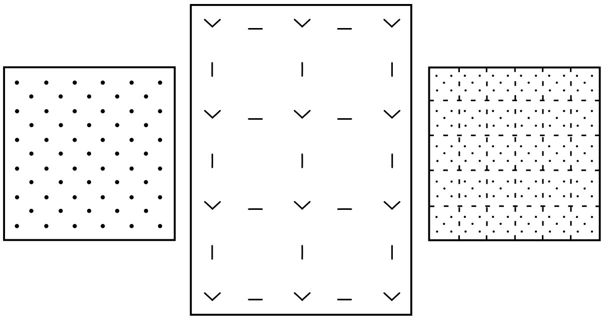
Heavy-weight Paper—Weight Code

IX Granite Tag (.007) to 5X Granite Tag (.019)

- Heavyweight pattern paper is called *tag board, manila,* or *hard paper* and is used primarily for production patterns.

Light-weight Paper—Weight Code
1 to 5 Double-Duty Marking Paper

- Lightweight paper is called *marking paper.*
- Marking paper is used for making markers and to develop first patterns.
- The paper is marked with a choice of symbols: numbers, letters, short lines, and/or dots. The symbols help when aligning the grainlines of the patterns for tracing, and the numbers give an account of inches of the finished marker.
- Color-coded paper (color on one side only) has two functions: to indicate right-side-up of the pattern pieces and/or to indicate the design division to which the patterns belong.



PATTERNMAKING TERMS

The following terms and definitions are related to the workroom.

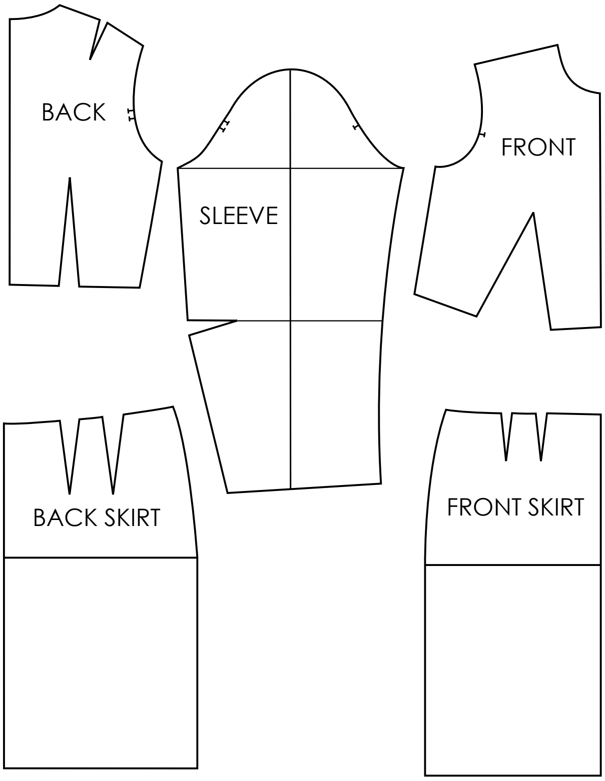
Pattern drafting. A system of patternmaking that depends on measurements taken from a form or model to create basic, foundation, or design patterns. An example is the draft of the basic pattern set.

Flat patternmaking. A system of patternmaking that depends on previously developed patterns. The working pattern is manipulated by using the slash or pivotal method to create design patterns.

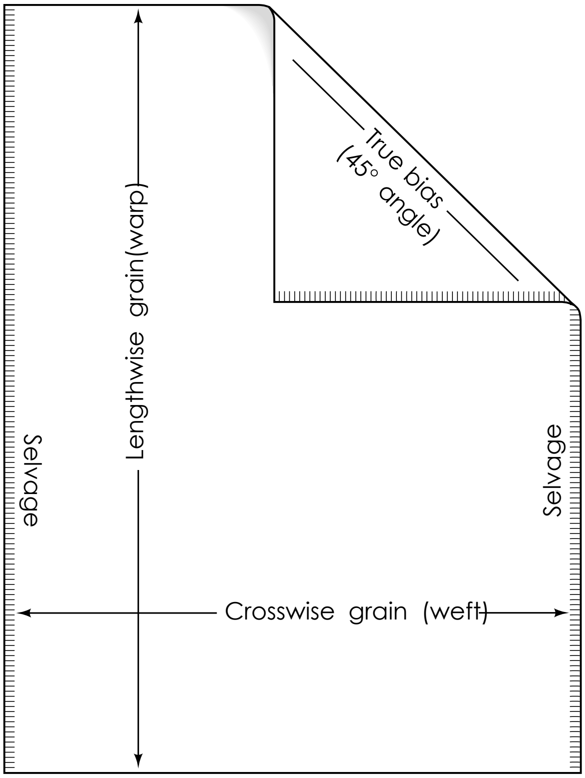
Basic pattern set. A five-piece pattern set, consisting of front and back bodice and skirt and a long sleeve, which represents the dimensions of a specific form or figure. It is developed without design features. The traced copy is referred to as a *working pattern.*

Working pattern. Any pattern used as a base for manipulation when generating design patterns. In this text the basic pattern set is the base for design projects.

Basic Pattern Set



FABRIC TERMS



Muslin. A plain-woven cotton made from bleached or unbleached corded yarns in a variety of weights:

- *Coarse-weave:* Used for draping and testing basic patterns.
- *Light-weight:* Used for softly draped garments.
- *Heavy-weight:* Firmly woven, used for testing tailored garments, jackets, and coats.

Grain. The direction in which the yarn is woven or knitted (lengthwise grain, or *warp*; crosswise grain, or *weft*).

Lengthwise grain (warp). Yarns parallel with selvage and at right angles to the crosswise grain. It is the most stable grain.

Crosswise grain (weft). Yarns woven across the fabric from selvage to selvage. It is the filling yarn of woven fabrics. Crosswise grain yields to tension.

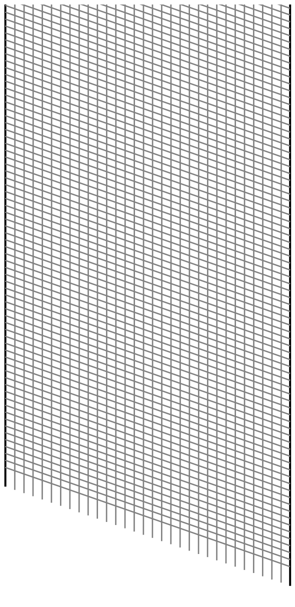
Selvage. The narrow, firmly woven, and finished strip on both lengthwise grain edges of the woven fabric. Clipping selvage releases tension.

Bias. A slanting or diagonal line cut or sewn across the weave of the cloth.

True bias. The angle line that intersects with the lengthwise and crosswise grains at a 45° angle. True bias has maximum give and stretch, easily conforming to the figure's contours. Flares, cowls, and drapes work best when cut on true bias.

Bowing and skewing. When filler threads do not interlace with the straight grains at 90°, bowing and skewing, or a one-sided combination occurs and is often sent to industry in that condition unless otherwise instructed.

Skewing



Bowing

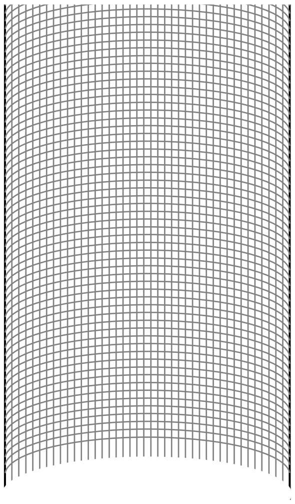


Figure 1: Controlling the Grain

Finding the grainline. Pull a filler thread (weft) on the cross-grain selvage to selvage. Cut through the channel in preparation for stretching. Do not trim the other end.

Figure 2: Aligning the Grainline

To correct bowing or skewing. Pull the fabric diagonally at opposite ends of the fabric. Repeat at the other ends. This process helps to align the straight grain (warp) and crosswise grain (weft); then press to a perfect square.

This process can be done for individual garments but is impractical for mass-produced designs. However, the manufacturer can request, at a cost, to have the problem corrected by the fabric company. Computer-controlled weaving can correct the problem.

Figure 1

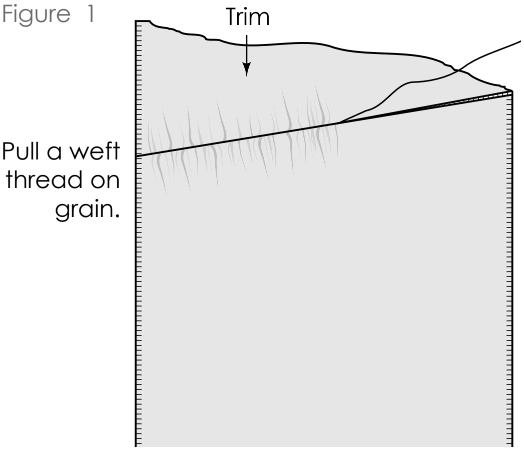


Figure 2

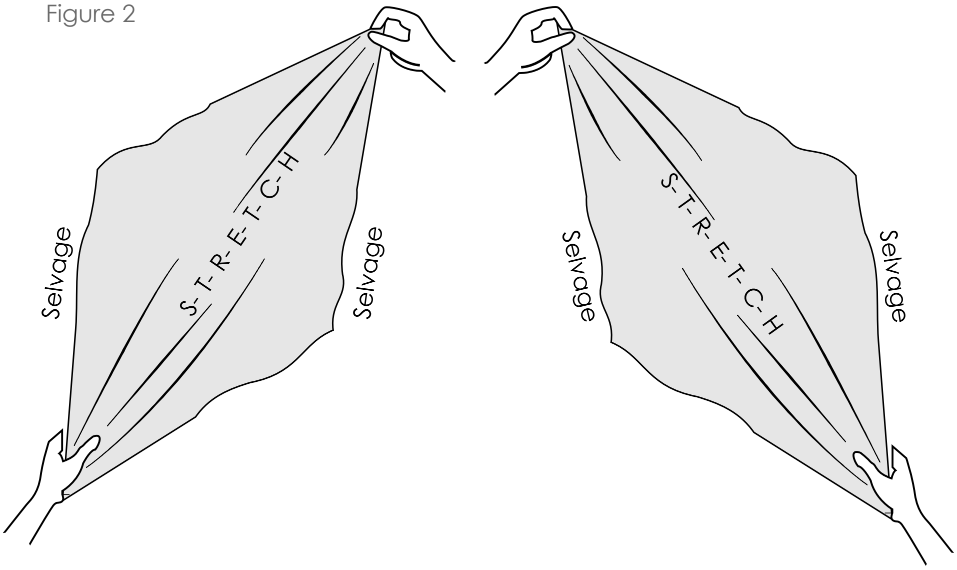


Figure 3

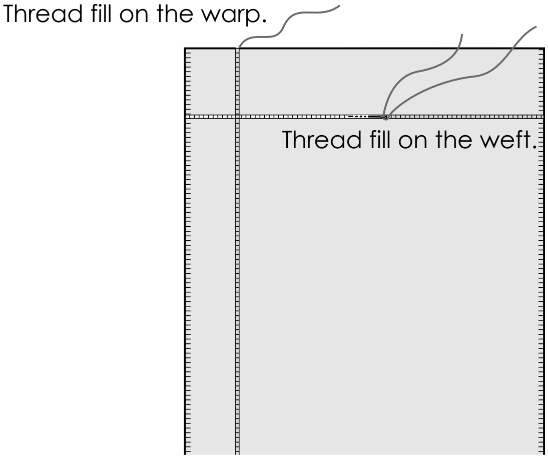


Figure 3: Thread-Marking Grains

Pull straight and filler threads through the squared fabric and with colored threaded needle, slip through the channels for marking.

Couture salons prepare toile in a similar manner, as do some fashion schools, in preparing muslin for draping projects. It is also an excellent way to introduce beginning students to the straight and cross grains that make up woven fabrics.

Thread lines allow the draper to view the grainline as the design is being created.

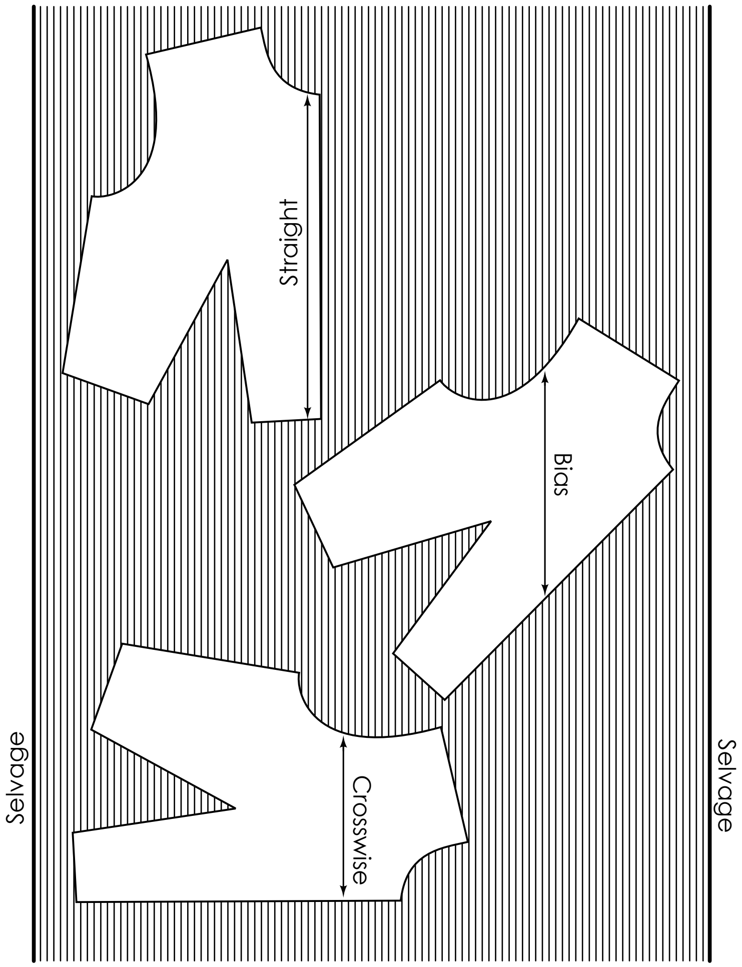
PATTERN GRAINLINE

The pattern grainline is a line drawn on each pattern piece (from end to end) to indicate how the pattern should align with the lengthwise grain of the fabric. Regardless of where the grainline is drawn on the pattern, it will always be placed on the fabric so that the grainline is parallel to the selvage edge. Pattern placement is illustrated in Figure 1. The effect of grainline on garments is shown in Figures 2, 3, and 4.

Direction of Grainline

- Vertical grainlines are drawn parallel to center for garments cut on straight grain (Figure 2).
- Bias grainlines are drawn at an angle to center (45° angle for true bias) for garments cut on the bias (Figure 3).
- Horizontal grainlines are drawn at right angles to center for garments cut on crosswise grain (Figure 4).

Figure 1



Grainline Arrows

- Arrows placed at both ends of the grainline indicate that the top of the pattern may be placed in either direction along the lengthwise grainline of the fabric (for fabrics without a nap).
- An arrow placed at the top *or* the bottom of the grainline indicates that the pattern must be placed in one direction only (for fabrics with a nap).

Figure 2 Straight Grainline

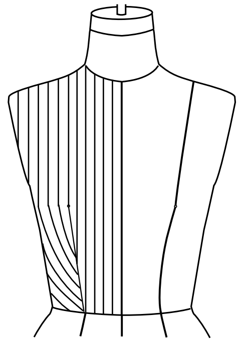


Figure 3 Bias Grainline

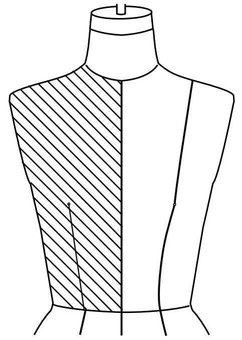
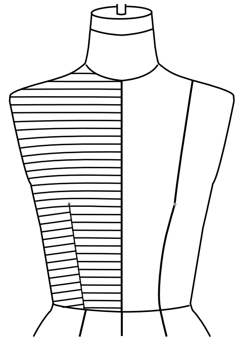


Figure 4 Crosswise grainline



DART

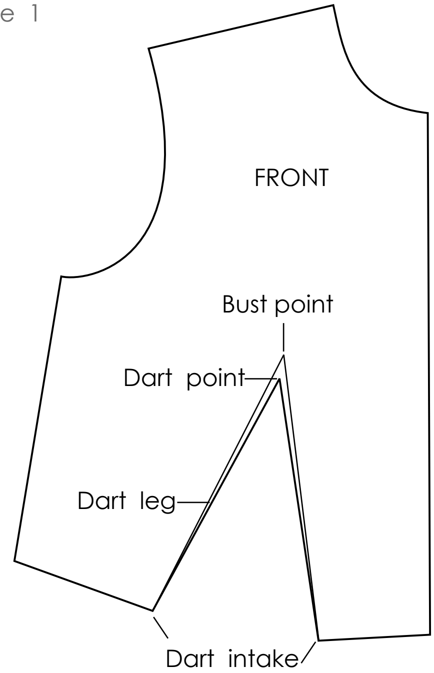
Bust point. A designated place on the bust and pattern and referred to in flat patternmaking as the pivotal point or apex (Figure 1).

Dart. A wedge-shaped cut-out in a pattern to control the fit of a garment when stitched.

Dart legs. The two lines that converge at a predetermined point on the pattern.

Dart intake. The amount of excess (or space) confined between dart legs. Its purposes are to take up excess where it is not needed and to gradually release fabric where it is needed to control the fit of the garment.

Figure 1


FRONT
Bust point
Dart point
Dart leg
Dart intake

Trueing. The blending and straightening of pencil lines, crossmarks, and dot marks for the purpose of establishing correct seam lengths—for example, trueing a side seam having a side dart.

- Fold dart and draw side seam (Figure 2a).
- Trace the side seamline (Figure 2b).
- Unfold dart and pencil in the dart (Figure 2c).

Figure 2a

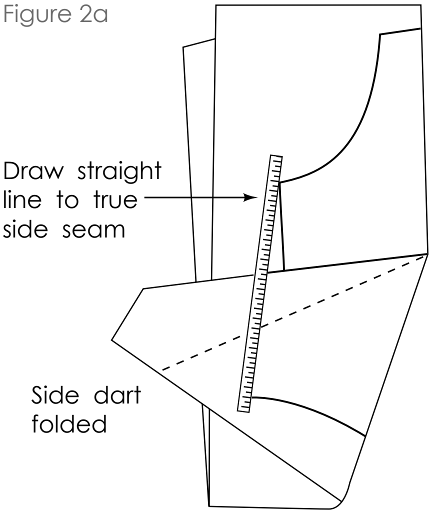

Draw straight line to true side seam
Side dart folded

Figure 2b

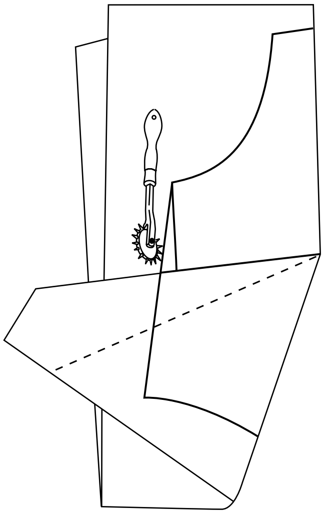
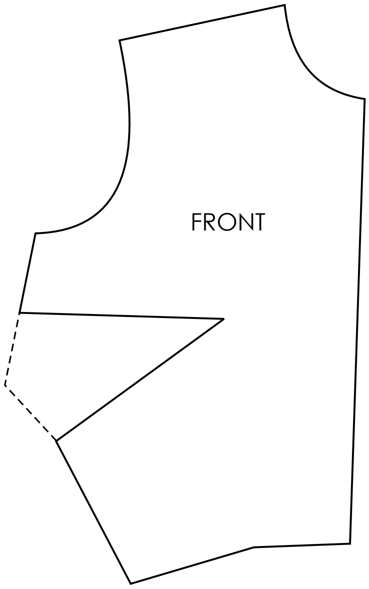


Figure 2c



BLENDING, TRUEING, AND EQUALIZING

Uneven curves of joining seams can be blended by equalizing the differences. The adjusted seamlines are blended smoothly along the seamline, especially hiplines and leglines. Figure 1.

Blending. A process of smoothing, shaping, and rounding angular lines along a seam for a smooth transition from one point to the next and for blending marks made on the pattern or muslin. (Blending includes trueing.) Figures 2a, 2b.

Figure 1

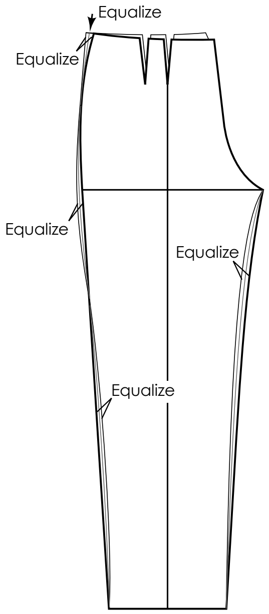


Figure 2a

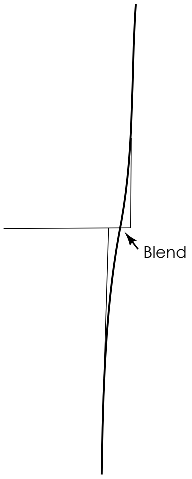
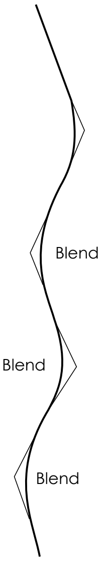


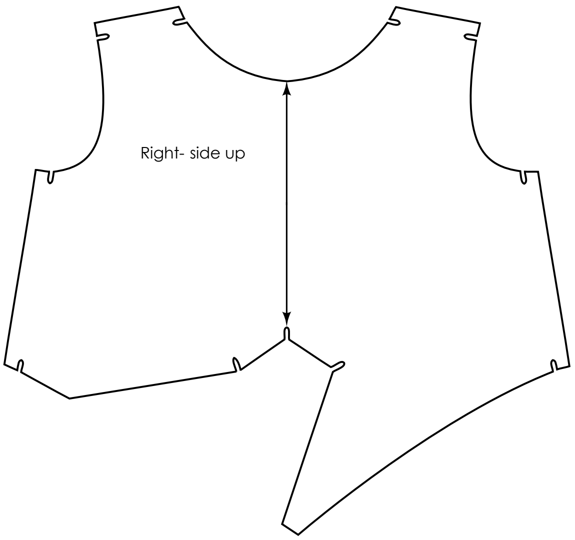
Figure 2b



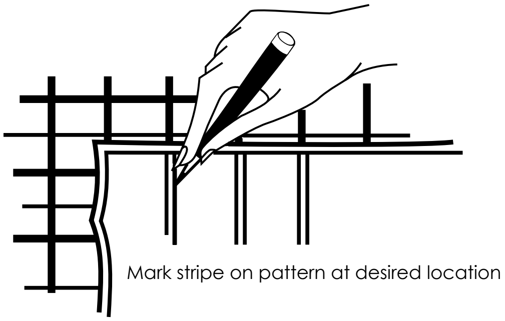
SPECIAL INFORMATION

Right-side-up (when sides differ). Instruction applies to asymmetrical designs (right side differs from the left side) and for patterns cut from engineered fabrics such as border prints, randomly spaced flowers, geometric forms, and multiple colors. Such fabrics require specific pattern placement so that the fabric design can be arranged in the same location for all garments cut from that fabric. *Right-side-up (RSUP)* indicates to the marker maker that the pattern is to be placed face up on the marker.

Detail location. Mark the location in which a detail is to be placed on the pattern. This will ensure that the flower, abstract detail, or stripes will always be on the correct side and in the correct place on the garment.



Stripe placement.


Mark stripe on pattern at desired location

Balance Line Terms

Plumb line. A vertical line that is at right angles with the floor. Used to determine the balance of the figure.

Perpendicular line. A straight line at right angles to another line. (See right angle.)

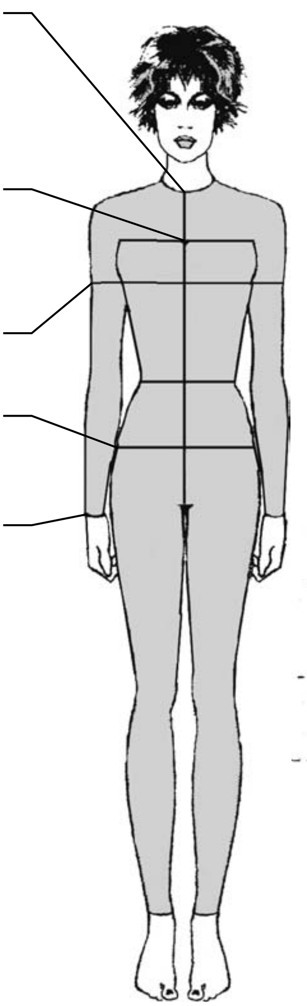
Vertical line. A line that is straight up and down.

Horizontal line. A line parallel with the floor.

Right angle. The 90° angle formed by two intersecting lines, referred to as a *squared* line.

Asymmetrical line. A center line with unequal proportions on either side of it.

Symmetrical line. A center line with equal proportions on either side of it.



Balance. The perfect relationship between parts that, when combined, form a unit (or whole) in which each part is in exact proportion and harmony with all others.

Balancing a pattern. Finding and adjusting the differences between joining pattern parts to improve the hang and fit of the garment.

Horizontal balance line (HBL). A reference to any line marked around the form that is parallel with the floor. Patterns are also marked with horizontal balance lines squared from the center lines representing the crosswise grain when the garment is cut in fabric. The HBL lines help when balancing the patterns.

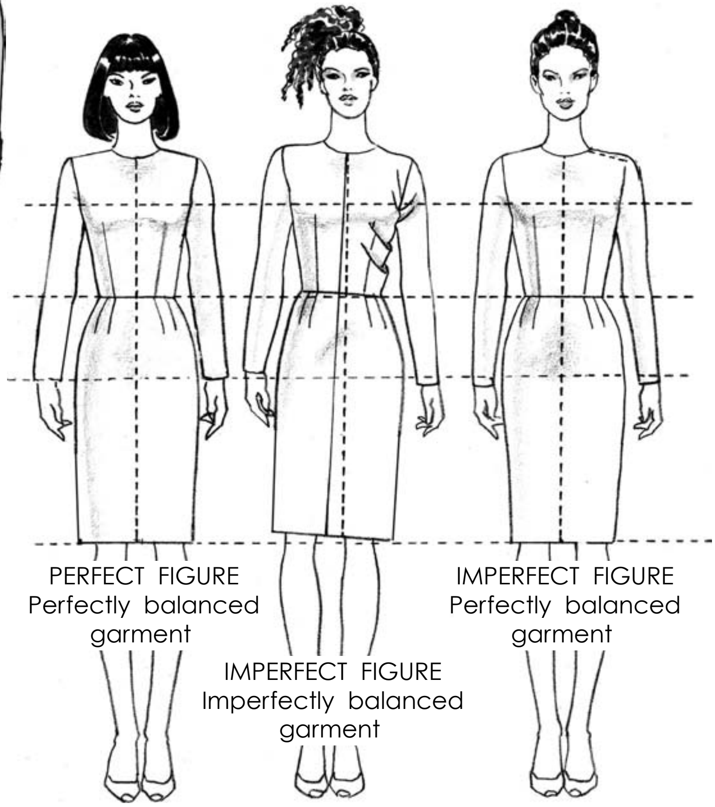

PERFECT FIGURE
Perfectly balanced garment
IMPERFECT FIGURE
Imperfectly balanced garment
IMPERFECT FIGURE
Perfectly balanced garment

Figure 5a

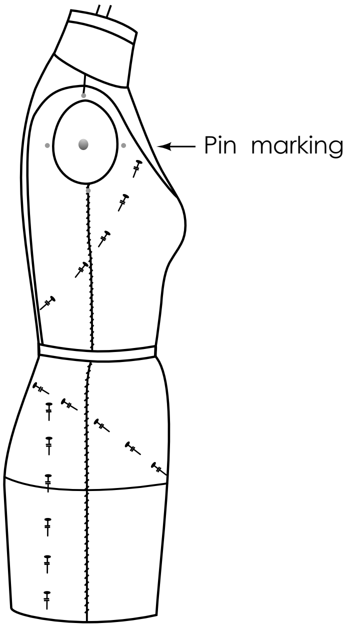
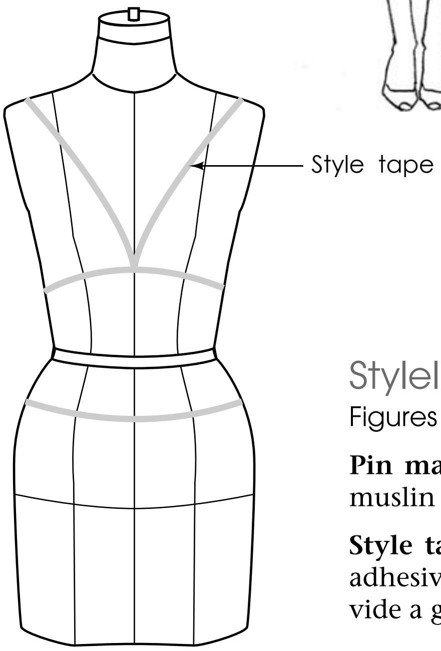


Figure 5 b



Styleline Guides

Figures 5a, b

Pin marking. Placing a series of pins through the muslin or form to evaluate styleline placement.

Style tape marking. Styleline placement by color adhesive tape to evaluate design features and to provide a guide when developing design patterns.

The Way We Were

Clothing has been manufactured in essentially the same way since the invention of the sewing machine in the mid-nineteenth century. Old-fashioned, labor-intensive methods are still used by some small manufacturers and designers of custom-made apparel because they cannot afford technical upgrades. Personal computers and inexpensive software are changing apparel design, and even small manufacturers can afford computer-assisted apparel production applications.

Today, more than 90 percent of apparel sold in America is manufactured off-shore. This reality has accelerated use of computer-assisted apparel production methods and the Internet.

In the 1970s, grading and marker making was computerized, followed in the 1990s by large computer-aided design (CAD) systems taking over patternmaking, fabric design, and design graphics.

Today, even the smallest manufacturer can rent hardware and software to assist the design and production processes. Computer-generated patterns, markers, specifications, and cost sheets can be sent via the Internet to factories located around the world. Though some jobs have been lost, designers, patternmakers, marker makers, graders, and cutters are still needed in this fast-paced business.

Computer companies offer seminars for students and current manufacturing employees to keep them updated on new technology. Fashion schools have added computer-assisted technology courses to their curriculum.

TukaTech set up Tukacenters in America as an innovation for students and those owning small businesses. They can produce patterns and samples from designs using TukaTech software and have the patterns printed out at a local Kinko’s. Another innovation by TukaTech and the Fashion Book Store is *Fashion Project Café*, which is housed in the Fashion Mart at Los Angeles, California. The project was conceived as an associated service for manufacturers large and small. The service center leverages the most advanced technology in computer aided patternmaking, grading, and 3-D sewing that streamlines apparel production, reduces cost, and increases speed and quality to the market.

Even though American manufacturing is being outsourced to other countries, the entrepreneur can always find a niche in this dynamic industry that values change. Fashion-savvy youth and innovative fashion leaders still demand innovative apparel. The mature customer searches for attractive garments that fit his or her changing figure.

Flexibility, research, and knowledge of a customer’s needs are the requirements of a successful apparel manufacturer of any size.

Now that you have read the introduction, you are one step closer to reaching your goals. Go for it!

PRODUCTION TERMS

First pattern. A first pattern is the original pattern developed for designs. The first pattern is generally made on marking paper and requires fitting and pattern corrections. Half a pattern is developed in the workroom (unless instructed otherwise). An asymmetrical design always requires a full pattern. Unless the garment is dropped from the line, it will be tested for fit until perfect.

Production pattern. A production pattern is the final corrected and error-free copy. The pattern contains every pattern piece required to complete the garment. The pattern is used by the grader for sizing and by the marker maker for fabric layout. See Figure 1c. A pattern chart is placed in front of the pattern set and a design tag is stitched to the garment for tracking.

Marker. A marker is the arrangement of pattern pieces, either manually traced on marking paper or patterns laid on a special paper and photographed, or patterns are digitized for computer application in laying out the marker. All pattern symbols are marked on the patterns. Patterns are interlocked; sizes are mixed to eliminate fabric waste. Grainlines on the patterns lay parallel with the selvage, with one exception; small patterns are fit into available space without regard to the grainline. The printout paper marker is laid on top of many layers of fabric. Patterns are cut either manually or by computer.

Traced Marker

Figure 1a

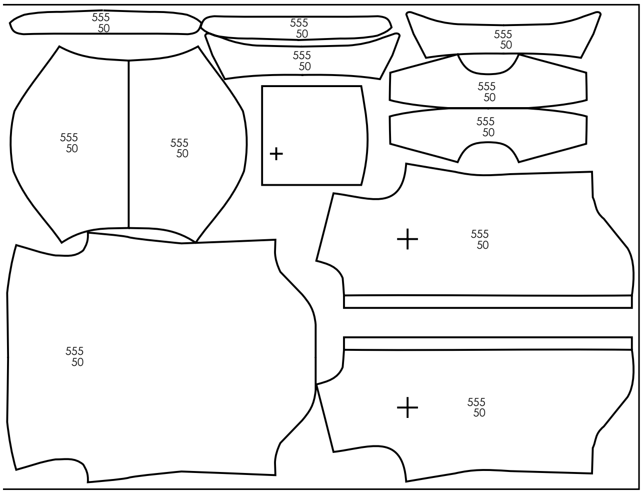
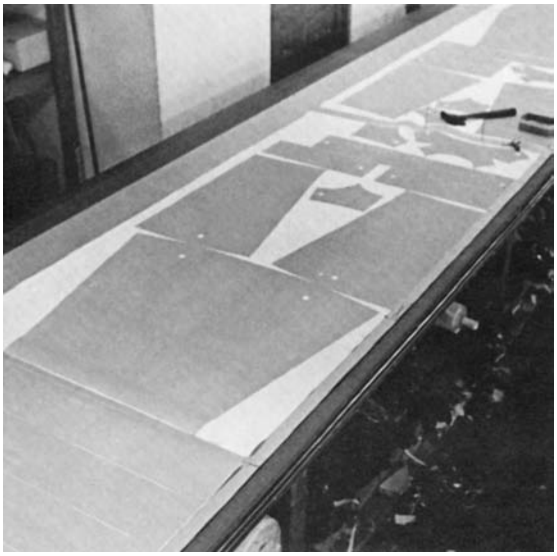


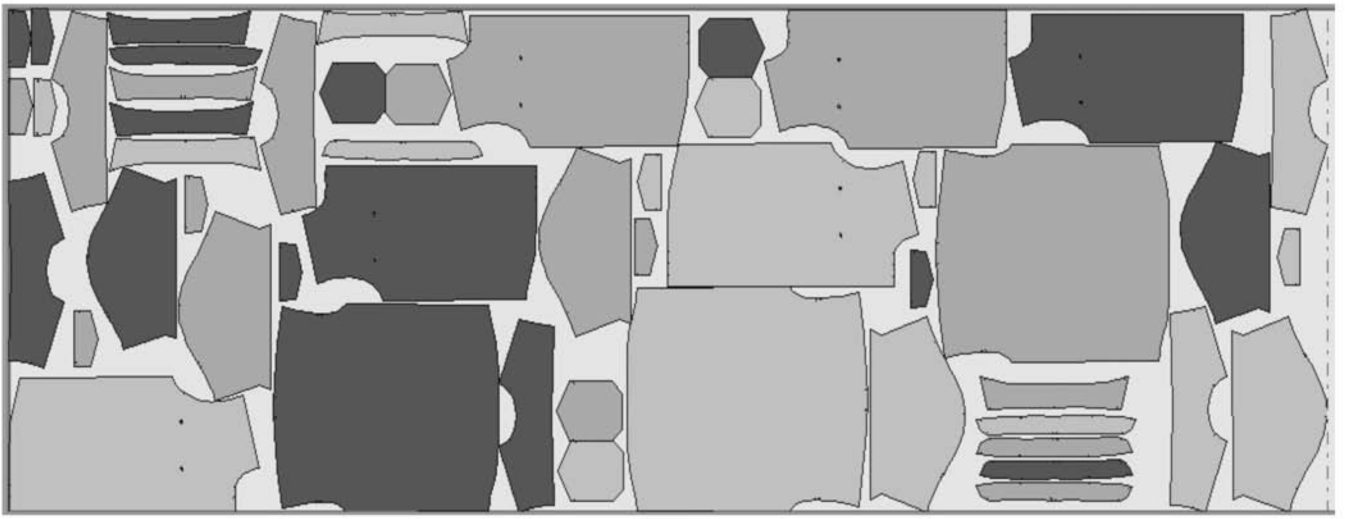
Photo Marker

Figure 1b



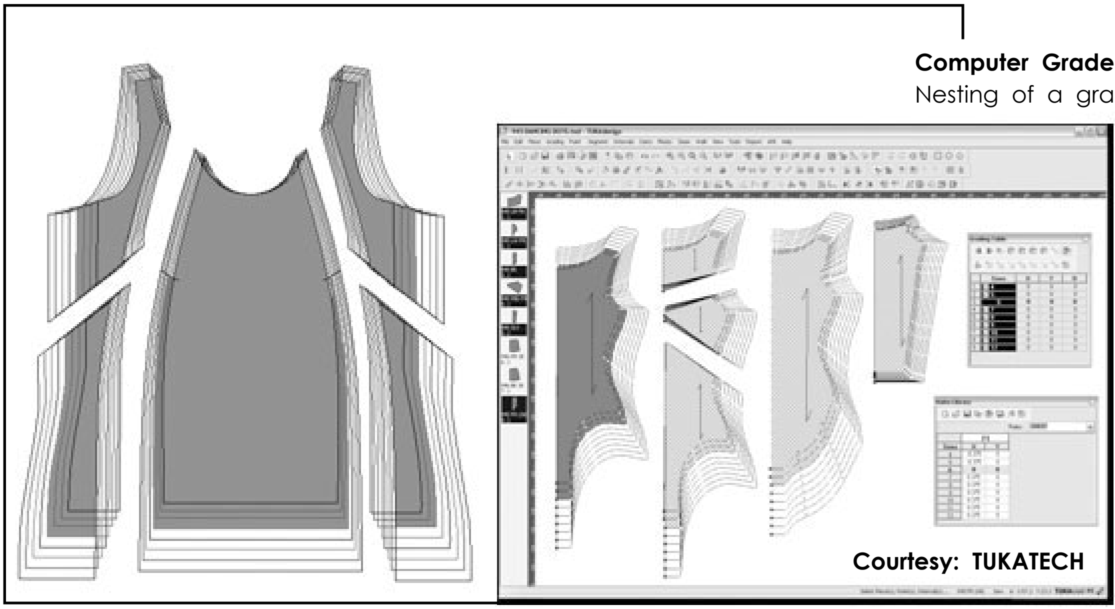
Digitized Marker

Figure 1c



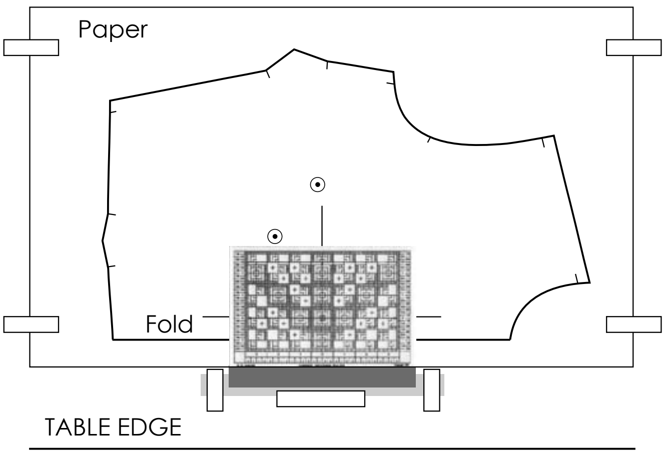
Courtesy: TukaTech

Grader. A grader increases and decreases the size of patterns based on the company's perfected sample (example: model size 10). The company sets its requirements for grade length, circumference, and width. Grade sizing differs from company to company. Graded patterns are done singularly, or graded one on top of the other (nesting). Today most grading is done by computer; however, grading can be done using the Dario grading machine, or manually with the Hinge ruler or its equivalent. The graded patterns go to the marker maker as the next step toward production.

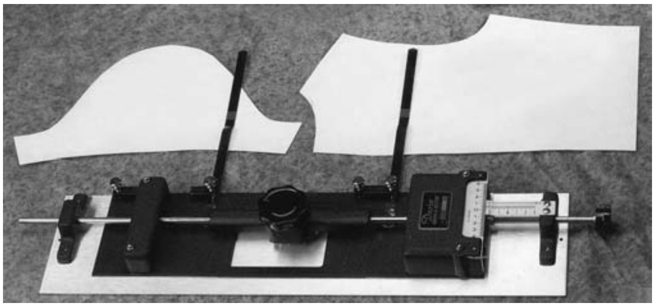


Computer Graded Patterns
Nesting of a graded pattern set.

Courtesy: TUKATECH



Hinge ruler. The Hinge ruler was originally created by Kay Cleverly, who gave the ruler to Eleanor Davis, who wrote the instructions. A version of this ruler may be purchased through Vecchiarelli Bros, Inc.



Dario grading machine. Purchase through Vecchiarelli Bros., Inc., 121 W. 15th Street, Los Angeles, CA 90015. Website: www.vebros.com; telephone: 213-749-5944.

Digitizer. Converts data to digital form for use in a computer. A handheld mouselike device that, when activated, transfers pattern shapes electronically to the electronic work table. Pattern grading can also be done without the table with greater speed. Knocking off garments is another use of the digitizer, as is two-dimensional pattern correcting.

Cutter. Cutting is done by hand using an electric cutting machine. A skilled cutter's hand secures and moves the many plies of cut fabric away while the other hand controls the cutting machine.

Computer cutting. The cutting blade is secured by a safety cover as the blade penetrates plies of fabric. The cutting blade is controlled by a digitized measurement card.

Courtesy: TukaTech

Digitizing

BODY SCANNING

Body scanning is another tool that helps industry in devising the best set of measurements for its customers. The body scanner is a light-emitting device that can produce scans accurate to 1/16 inch. Body scanning takes place in a boxlike cube and replicates the body measurements in three-dimensional (3D) format. Several individuals, as well as large research labs, have been working on this concept for years. It has come of age, even though its full potential has yet to be realized.

COMPUTER COMPANIES

Computer companies offer automated systems that include fabric and garment design; pattern design, grading, and marking; high-speed jet plotters; single-ply cutters; spreading and cutting; unit-production system; and electronic tracking in sewing, warehousing, distribution, and manufacturing.

Service to manufacturers by computer companies varies. Company websites are given below if you would like additional information.

TukaTech: www.tukatech.com

Gerber: www.gerbertechnology.com

Lectra: www.lectra.com

Pad: www.padsystem.com

Investronica: www.investronica.com

Optitex: www.optitex.com

LAST, BUT NOT LEAST

Fitter. The fitter is indispensable in finalizing the fit of garments for the next phase in production. A good fitter examines inside the garment for correctly stitched seams before analyzing the fit. Fitting sessions include the designer, assistant, and patternmaker in real time, or fitting is done by E-Fit simulation. A garment often requires several cycles before a perfect fit is achieved.

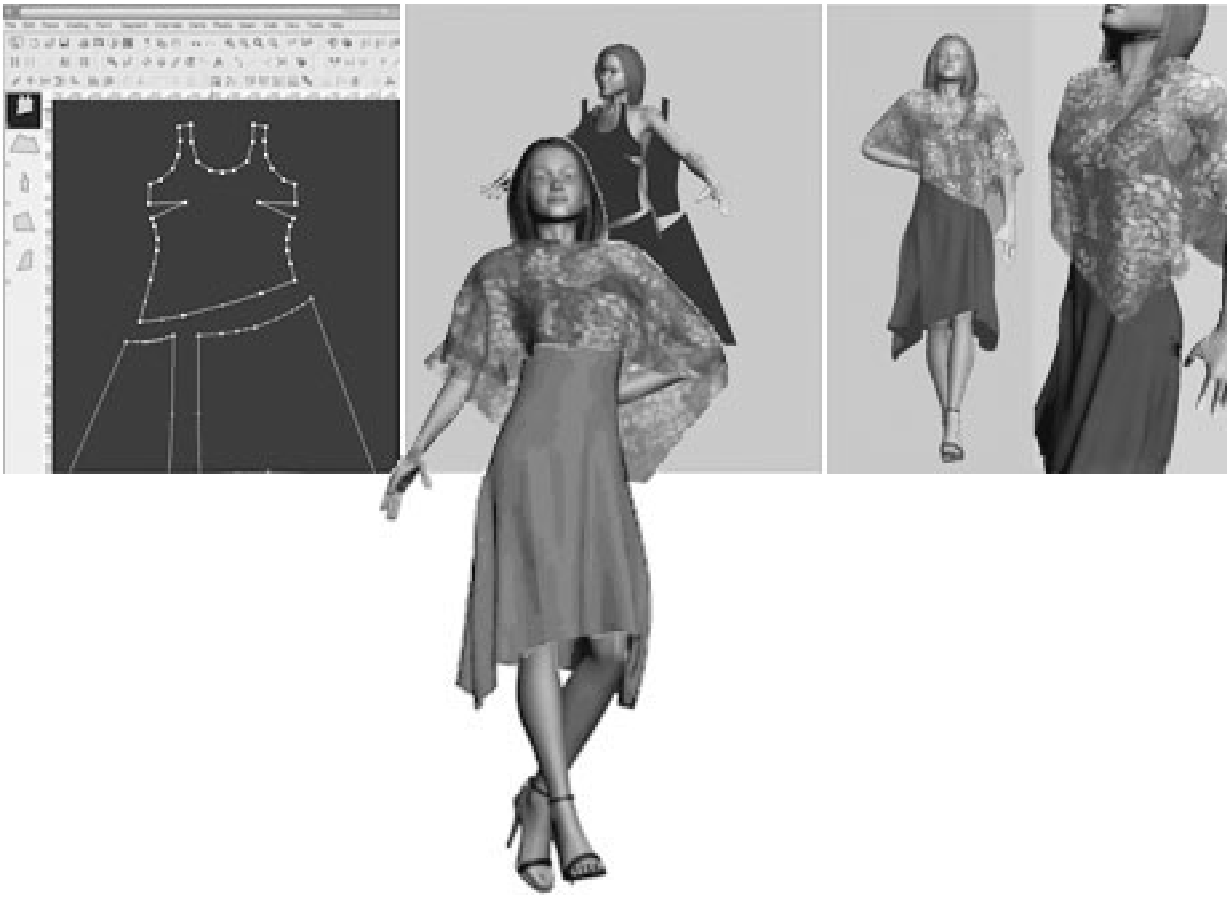
Sample sewer. The designer and patternmaker depend on the expertise of the sample sewer for information about the garment. Do seams match? Are there too many notches, or not enough? Are the notches placed correctly? Are there difficulties in sewing the garment together?

E-FIT SIMULATOR IS BORN

In 2004, E-Fit Simulator software was developed by the innovative mind of Iva Sareen, president of TukaTech, who thought that fit approval, though down to a week, was not good enough for fast fashion developers who wanted their samples digitally on the same body in electronic form.* E-Fit Simulator software allows the entire garment to be sewn electronically on a digital model, all in 3D CAD, exactly the same as a Fit Model or fit form. Apply the fabric print or color and properties to see in motion if the garment fits on that model.

The *tension map* shows where the garment is tight or loose, or has too much material at every movement, exactly the way a live fit model would give feedback. The X-ray mode allows the patternmaker to see in 3D exactly where to make the adjustment on a 2D flat pattern, just like being in a fit session with a live model. Once patterns are corrected, a final garment can be sent electronically as a picture or Windows media movie, showing how the garment looks and fits. The designer can do e-fitting sessions on his or her laptop anywhere and get approval within hours, sometimes without making a physical sample.

E-Fit Simulation



Courtesy: TukaTech

---

* The 3D model is a scan of a live body (male, female, and children of any size). The model is transferred to the E-Fit Simulator; a bone structure is added; then animation is applied for real-time motion: walking, sitting, bending, and, yes, dancing.

APPAREL PRODUCT DEVELOPMENT

A commercial apparel designer is responsible for product development, though specific duties vary from company to company. The important elements needed to create a successful commercial line are:

- *Knowledge of the consumer.* A garment should be suitable for the person's age, image, and lifestyle.
- *Price.* Consumers evaluate the cost of a garment by anticipating use and pleasure received by wearing it.
- *Aesthetics*. The design, color, and decoration of a garment should enhance the face and figure of the consumer.

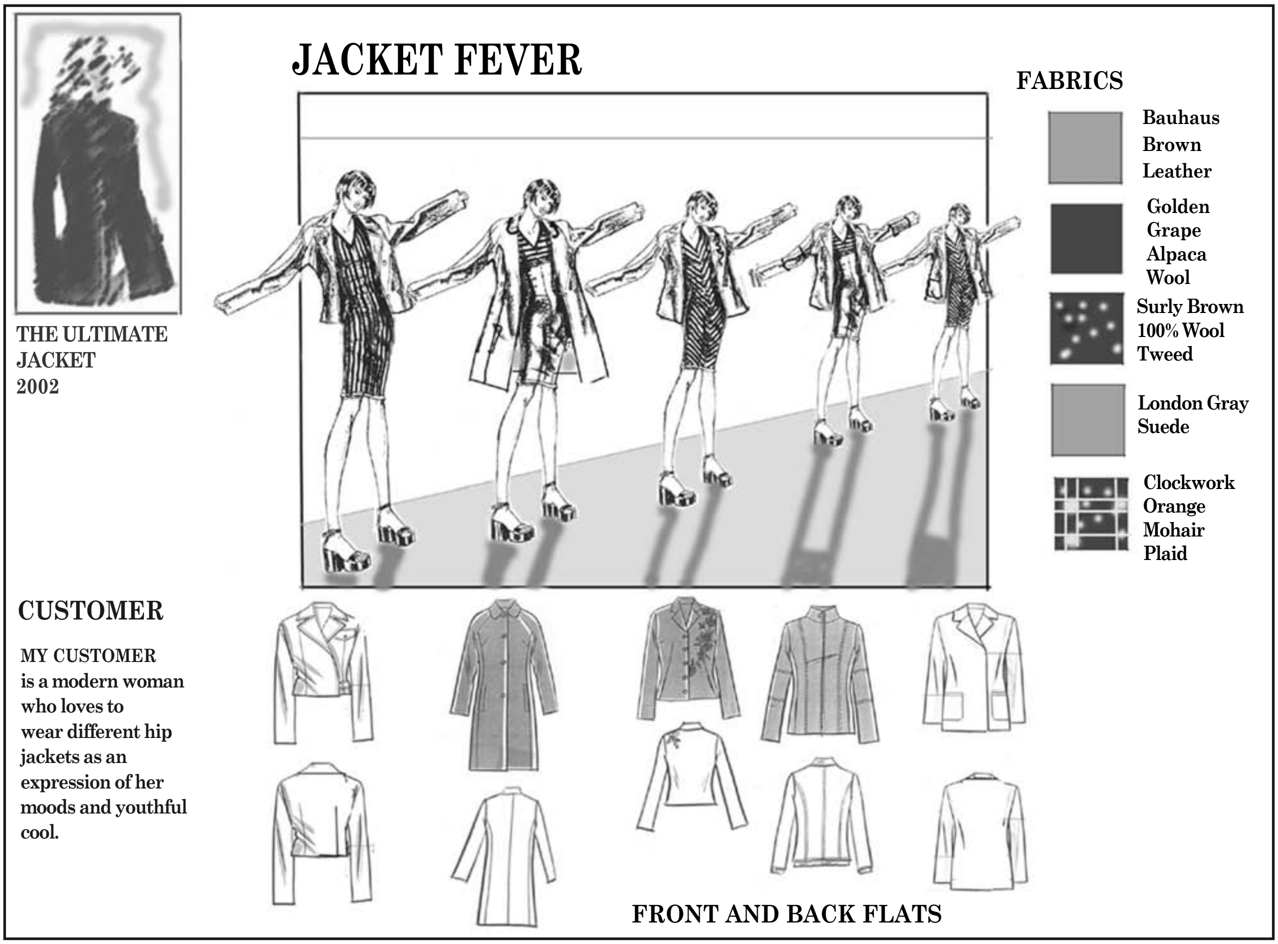
A designer starts a new line by researching color trends and fabric lines. Styling is determined by the designer's taste level, price of the line, the season, degree of fashion taste of the manufacturer, and past performance of specific styles.

The designer, assisted by design room personnel, may sketch, drape, or use a computer or flat patterns to create the first samples. A typical design room is staffed by an assistant designer, first patternmaker, sample cutter, and sample makers. Larger manufacturers add sketchers, fit models, and other assistants.

Merchandising the line is important to weed out the styles that do not sell well. The final line is shown to store buyers in the showroom, taken to retailers by traveling sales representatives, sent via computer images to buyers, and promoted through trade advertisements and buying office networks.

Production pattern development follows sales and prepares the first sample to be sewn efficiently in a factory and to fit an average customer. The designer is usually involved in sales presentations and all decisions that affect the product's aesthetics.

For in-depth information about product development, read *Inside Fashion Design*, Fifth Edition, written by Sharon Lee Tate, and published by Pearson/Prentice Hall.

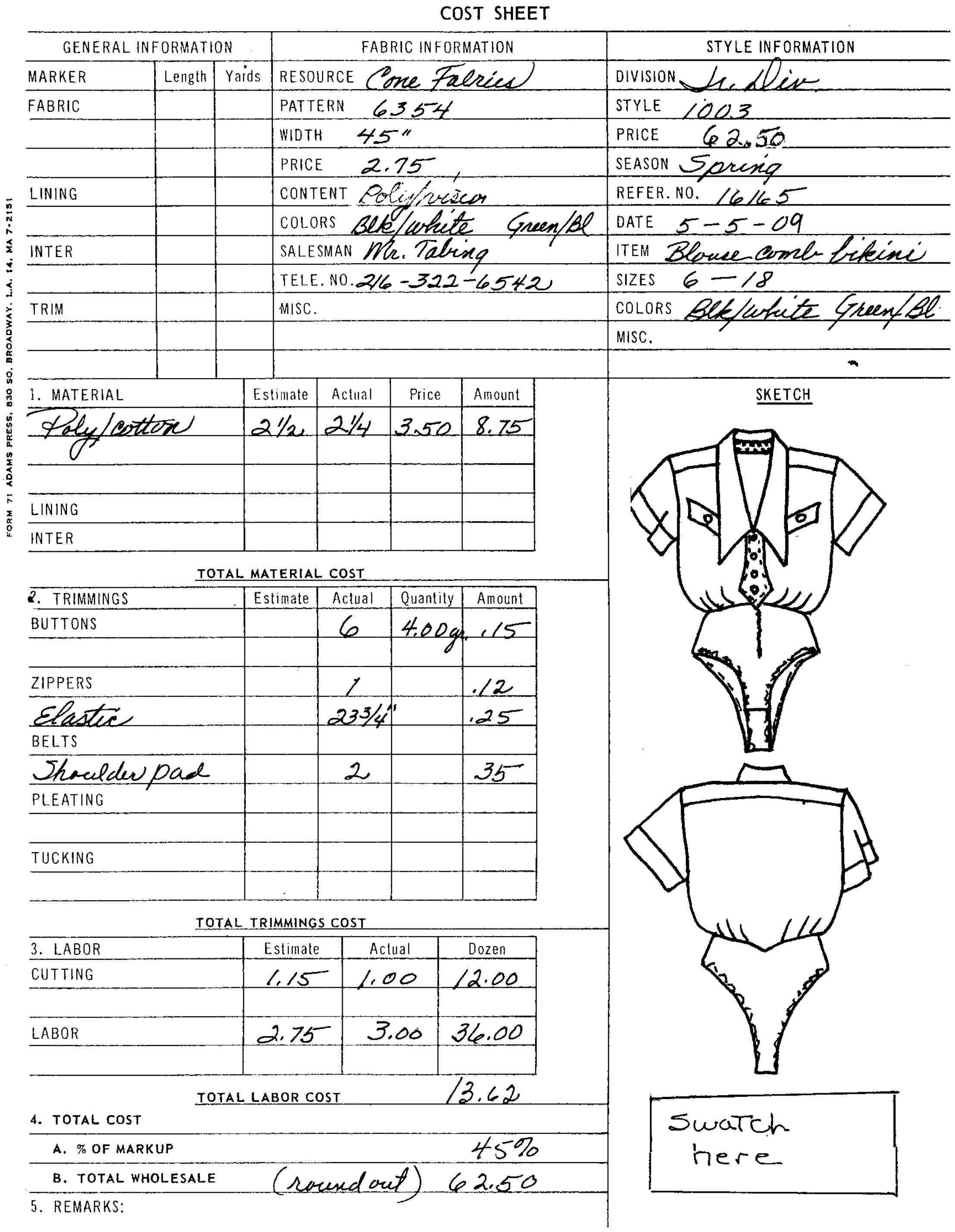

JACKET FEVER
THE ULTIMATE JACKET 2002
FABRICS
Bauhaus Brown Leather
Golden Grape Alpaca Wool
Surly Brown 100% Wool Tweed
London Gray Suede
Clockwork Orange Mohair Plaid
CUSTOMER
MY CUSTOMER is a modern woman who loves to wear different hip jackets as an expression of her moods and youthful cool.
FRONT AND BACK FLATS

Courtesy: *Fashion Illustration for Designers by Kathryn Hagen*

COST SHEET

A cost sheet is a complete record of each design and is used to *cost* the garment and establish the wholesale price. The top part of the form (items 1 and 2) is completed in the design room. It should include the names and telephone numbers of the salesperson and the fabric and trim companies, as well as fabric swatches, a sketch, and special pattern information or instructions. A blank copy is included in the back of the book for duplicating.

The original copy is for the manufacturer or production person, who completes the lower part (items 3 and 4) and marks yardage. This provides the manufacturer with information required for production. A duplicate kept in the design room for quick reference makes for fewer interruptions in the design department.



COST SHEET

GENERAL INFORMATION	Length	Yards
MARKER		
FABRIC		
LINING		
INTER		
TRIM		

FABRIC INFORMATION

RESOURCE Cone Fabrics
PATTERN 6354
WIDTH 45"
PRICE 2.75
CONTENT Poly/viscose
COLORS Blk/white Green/Bl
SALESMAN Mr. Tabing
TELE. NO. 216-322-6542
MISC.

STYLE INFORMATION

DIVISION Jr. Div.
STYLE 1003
PRICE 62.50
SEASON Spring
REFER. NO. 16165
DATE 5-5-09
ITEM Blouse comb bikini
SIZES 6 — 18
COLORS Blk/white Green/Bl
MISC.

1. MATERIAL	Estimate	Actual	Price	Amount
Poly/cotton	2½	2¼	3.50	8.75
LINING				
INTER				

TOTAL MATERIAL COST

2. TRIMMINGS	Estimate	Actual	Quantity	Amount
BUTTONS		6	4.00 gr.	.15
ZIPPERS		1		.12
Elastic		23¾"		.25
BELTS				
Shoulder pad		2		35
PLEATING				
TUCKING				

TOTAL TRIMMINGS COST

3. LABOR	Estimate	Actual	Dozen
CUTTING	1.15	1.00	12.00
LABOR	2.75	3.00	36.00

TOTAL LABOR COST 13.62

4. TOTAL COST

A. % OF MARKUP 45%

B. TOTAL WHOLESALE (round out) 62.50

5. REMARKS:

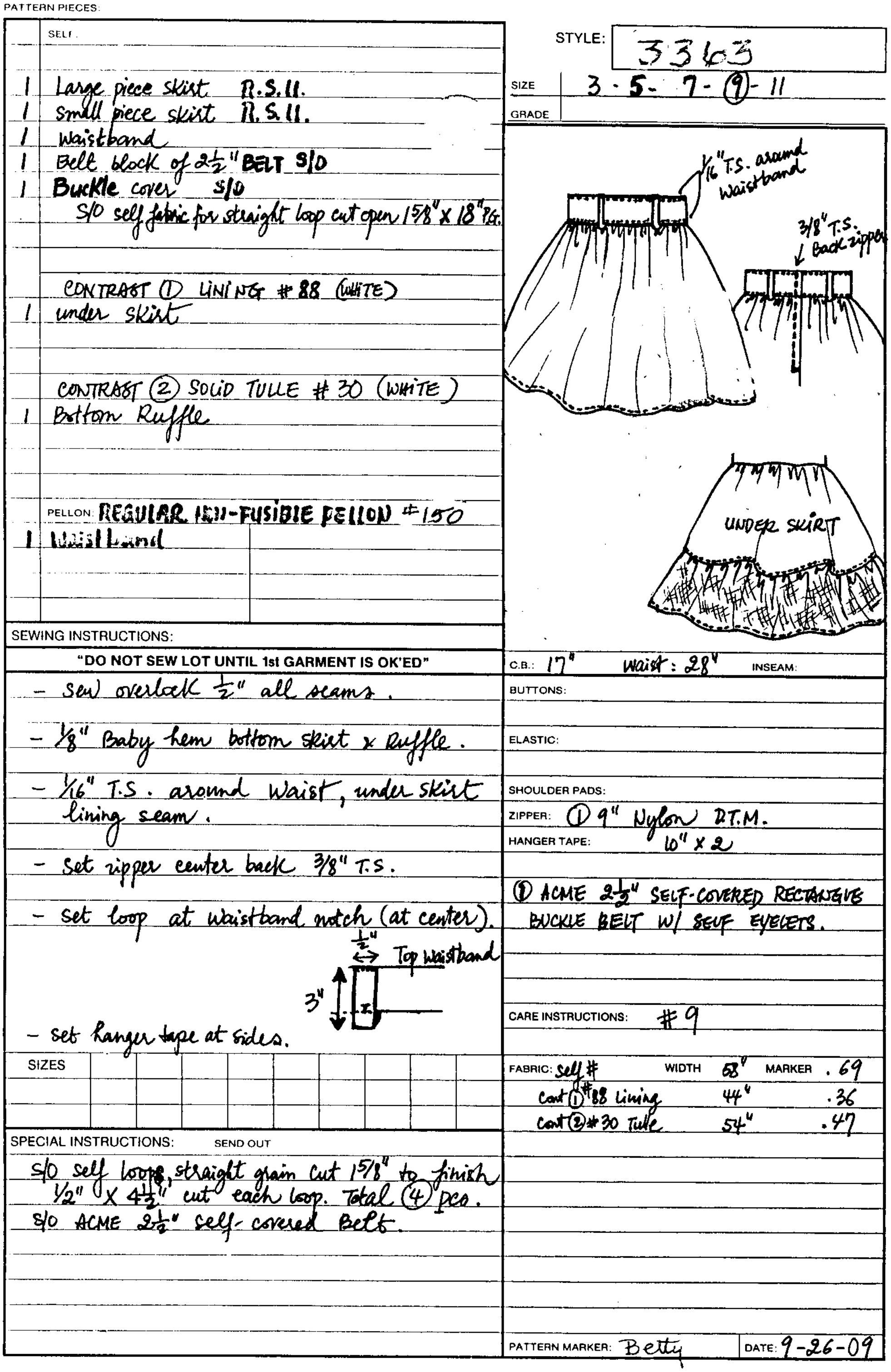
SKETCH

Swatch here

FORM 71 ADAMS PRESS, 830 SO. BROADWAY, L.A. 14, MA 7-2151

PATTERN CHART

The pattern chart is a complete record of all pattern pieces within the pattern set. It also includes swatches and special pattern information. Each pattern shape is identified by name and number of pieces to be cut. A color code is used to distinguish linings and interlinings from other pattern pieces. When completed, the chart is placed in front of the production pattern and given to the production manager. Some charts require sewing guides, as shown.


1/16" T.S. around Waistband
3/8" T.S. ↓ Back zipper
UNDER SKIRT
1/2"
Top waistband
3"

PATTERN PIECES:

SELF:

1 Large piece skirt R.S.11.
1 Small piece skirt R.S.11.
1 Waistband
1 Belt block of 2½" BELT S/O
1 Buckle cover S/O
S/O self fabric for straight loop cut open 1⅝" x 18" P.G.

CONTRAST ① LINING #88 (WHITE)
1 under skirt

CONTRAST ② SOLID TULLE #30 (WHITE)
1 Bottom Ruffle

PELLON: REGULAR NON-FUSIBLE PELLON #150
1 Waistband

STYLE: 3363
SIZE 3 - 5 - 7 - ⑨ - 11
GRADE

SEWING INSTRUCTIONS:

"DO NOT SEW LOT UNTIL 1st GARMENT IS OK'ED"

- sew overlock ½" all seams.
- ⅛" Baby hem bottom skirt x Ruffle.
- 1/16" T.S. around Waist, under skirt lining seam.
- Set zipper center back 3/8" T.S.
- Set loop at waistband notch (at center).
- set hanger tape at sides.

SIZES

SPECIAL INSTRUCTIONS: SEND OUT

S/O self loops, straight grain cut 1⅝" to finish ½" x 4½" cut each loop. Total ④ pcs.
S/O ACME 2½" self-covered Belt.

C.B.: 17" Waist: 28" INSEAM:
BUTTONS:
ELASTIC:
SHOULDER PADS:
ZIPPER: ① 9" Nylon D.T.M.
HANGER TAPE: 10" x 2

① ACME 2½" SELF-COVERED RECTANGLE BUCKLE BELT W/ SELF EYELETS.

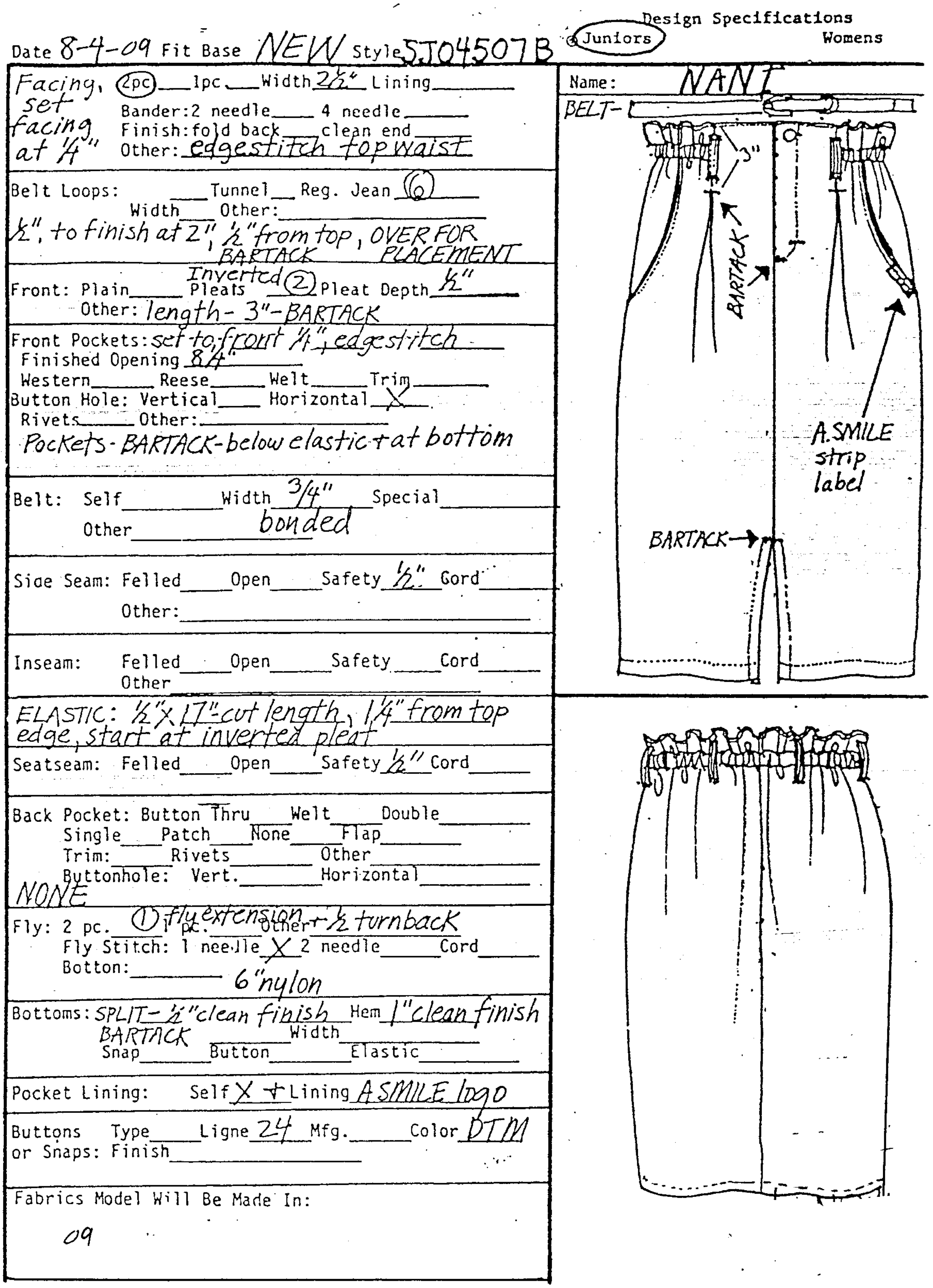
CARE INSTRUCTIONS: #9

FABRIC:	WIDTH	MARKER
Self #	58"	.69
Cont ① #88 Lining	44"	.36
Cont ② #30 Tulle	54"	.47

PATTERN MARKER: Betty
DATE: 9-26-09

DESIGN SPECIFICATIONS SHEET

The design specifications sheet is a record of the finishing requirements for each design. It is used by those responsible for finishing to ensure that the garment meets company standards. Study the chart and compare the information to the design it represents.


3"
BARTACK
BARTACK
A.SMILE strip label
BARTACK→

Design Specifications
[✓ Juniors] Womens

Date 8-4-09 Fit Base NEW Style SJO4507B

Name: NANT

BELT-

Facing, [✓ 2pc] ___1pc ___Width 2½" Lining________
set facing at ¼"
Bander: 2 needle____ 4 needle______
Finish: fold back___clean end______
Other: edgestitch top waist

Belt Loops: ____Tunnel__ Reg. Jean ⑥____
Width___ Other:______________
½", to finish at 2", ½" from top, OVER FOR BARTACK PLACEMENT

Front: Plain_____ Inverted Pleats ② Pleat Depth ½"
Other: length- 3"-BARTACK

Front Pockets: set to front ¼", edgestitch
Finished Opening 8¼"
Western______ Reese_____ Welt_____ Trim_______
Button Hole: Vertical____ Horizontal X
Rivets_____ Other:______________
Pockets-BARTACK-below elastic + at bottom

Belt: Self________ Width ¾" Special________
Other bonded

Side Seam: Felled____ Open____ Safety ½" Cord______
Other:______________

Inseam: Felled____ Open_____ Safety____ Cord______
Other______________

ELASTIC: ½"x17"-cut length, 1¼" from top edge, start at inverted pleat

Seatseam: Felled____ Open____ Safety ½" Cord______

Back Pocket: Button Thru___ Welt____ Double________
Single___ Patch___ None____ Flap________
Trim:_____ Rivets________ Other__________
Buttonhole: Vert.________ Horizontal________
NONE

Fly: 2 pc. ① 1 pc. fly extension Other + ½ turnback
Fly Stitch: 1 needle X 2 needle_____ Cord______
Botton:________ 6" nylon

Bottoms: SPLIT-½" clean finish Hem 1" clean finish
BARTACK ________Width__________
Snap_______ Button_______ Elastic_________

Pocket Lining: Self X + Lining ASMILE logo

Buttons Type_____ Ligne 24 Mfg._____ Color DTM
or Snaps: Finish______________

Fabrics Model Will Be Made In:
09

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

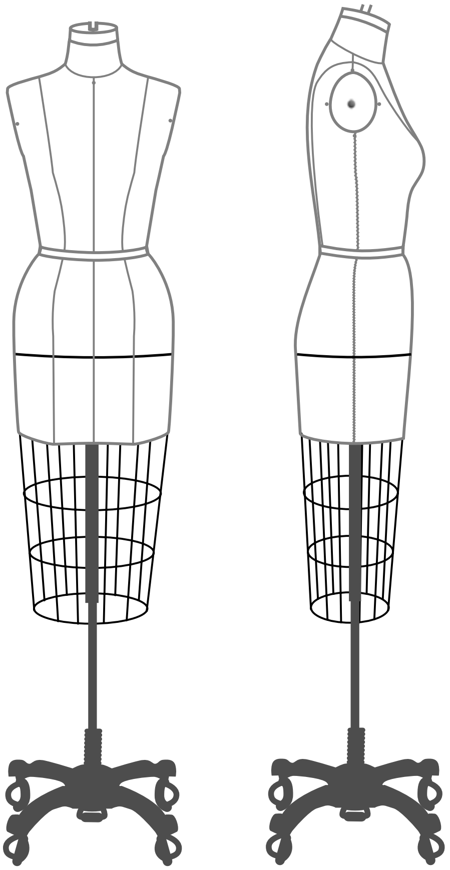
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle ____ floor ____
28. Crotch length ____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

*Measuring the Arm

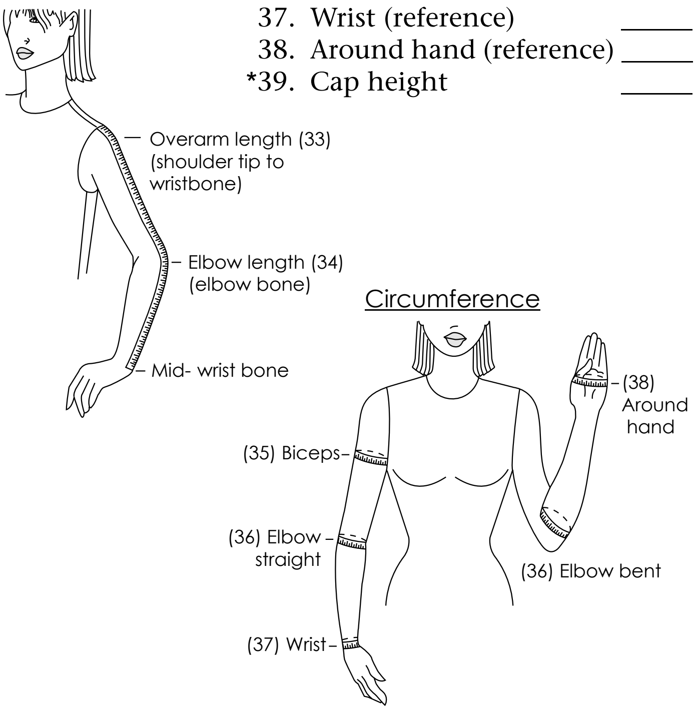
Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____


Length
Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone
Circumference
(38) Around hand
(35) Biceps
(36) Elbow straight
(36) Elbow bent
(37) Wrist

ANSWERS TO SELF-EVALUATION TESTS

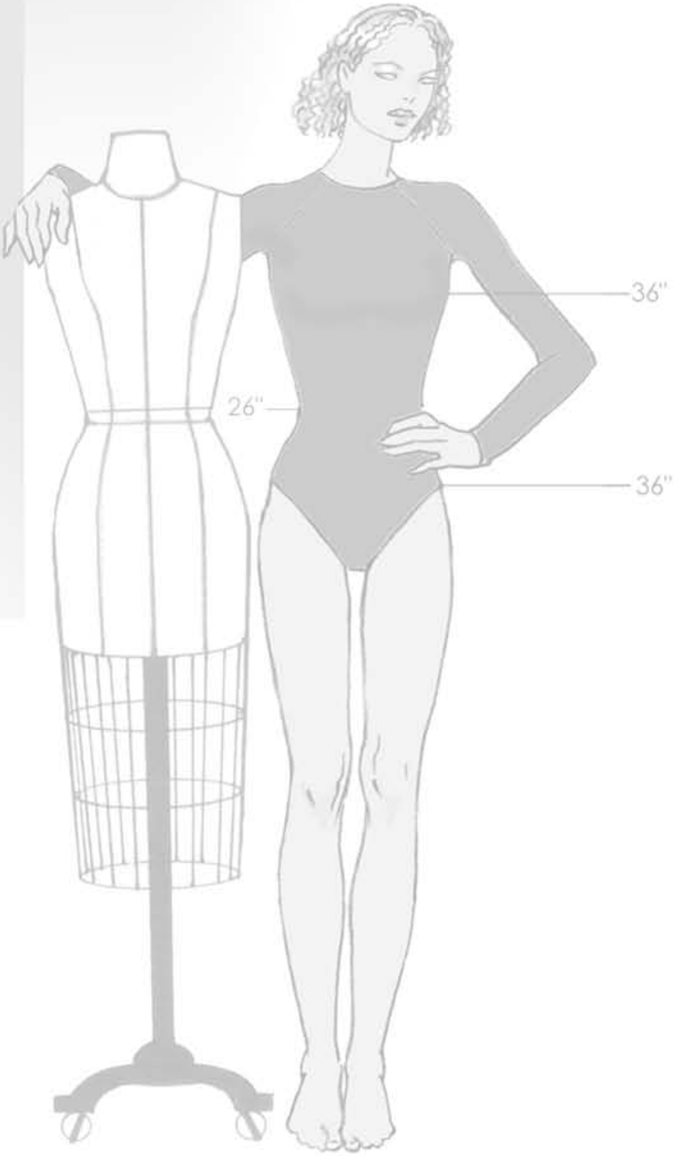
Test 1: A to B = 10 (8ths), or 1-1/4"; B to D = 3/8"; A to D = 13 (8ths) or 1-5/8"; D to C = 4/8", or 1/2"

Test 2: A = 13/16"; A to B = 18/16ths, or 1-1/8"; B to C = 4/16ths, or 1/4"; C to D = 9/16ths, or 5/8"

Form Measurements and Figure Analysis

From Chapter 2 of *Patternmaking for Fashion Design,* 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

Form Measurements and Figure Analysis



WHO IS THE STANDARD IDEAL FIGURE?
    Who Needs Her?
    Does This Elusive Figure Have Standards?
    Do Perfect Ratio Measurements Mean Perfect Proportions?
    Forms: Willow-Caned to Humanlike
PATTERN INDUSTRY STANDARDS
DEPARTMENT STORE STANDARDS
OTHER ATTEMPTS AT STANDARDIZATION
ASTM STANDARDS
    Figure Analysis for Personal Use or for Client
LANDMARK TERMS
MEASURING FORM AND MODEL
    Preparing the Form for Measuring
    Preparing the Model for Measuring
    Taking Measurements
HORIZONTAL BALANCE LINE (HBL)
CIRCUMFERENCE FOR FORM AND MODEL MEASUREMENTS
HORIZONTAL ARC FOR FORM AND MODEL MEASUREMENTS
    Front
    Back
    Model for Personal Fit
    Neck Circumference
VERTICAL MEASUREMENTS FOR FORM AND MODEL
    Front and Back—Form and Model
    Personal Fit: Asymmetric Verification
    New Strap Measurement
STANDARD MEASUREMENT CHART

WHO IS THE STANDARD IDEAL FIGURE?

She is a composite figure whose measurement standards are based upon who is listening to whom. She evolved from consumer feedback to buyer, buyer to manufacturer, and manufacturer to model form company. Her standards are whatever successful manufacturers, commercial pattern companies, chain and department stores, and industrial form companies say they are. She is a form; she is a figure; she is a set of measurements. And her silhouette changes at the slightest whim of fashion. She is considered "ideal" only when her measurements satisfy a majority of consumers.

Who Needs Her?

Technicians need her dimensions for patternmaking and fittings; designers need her silhouette for creating new designs; manufacturers need her for showings; models need to have her dimensions to be hired; and consumers need her for their representation.

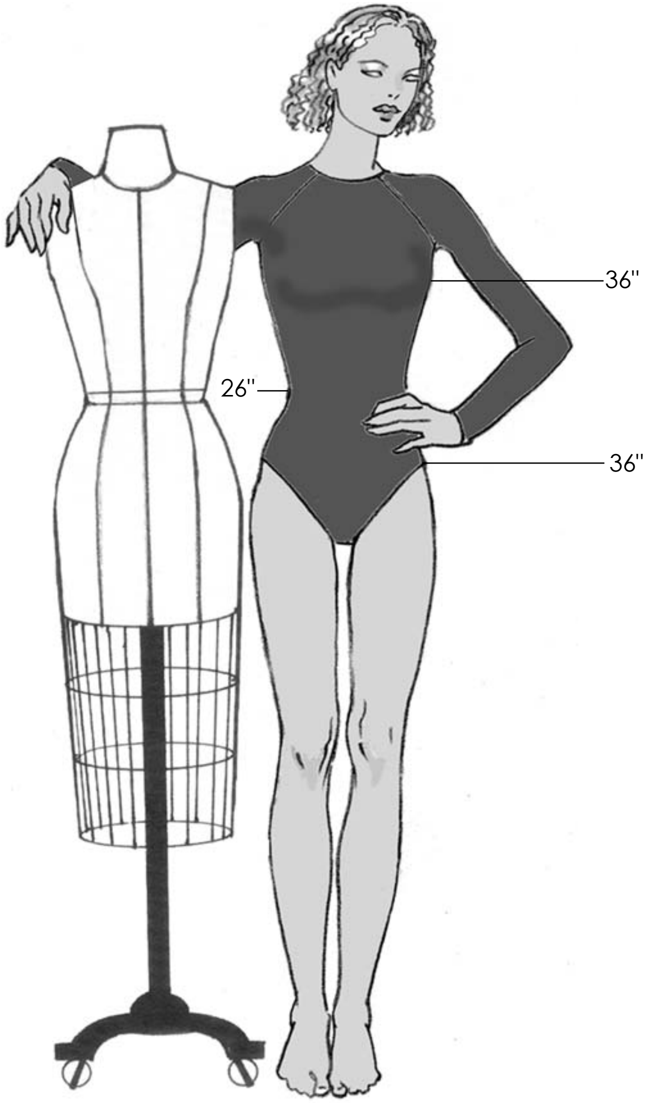
Does This Elusive Figure Have Standards?

Even though her dimensions vary, she does have standards. She is symmetrical, with an upright stance and aesthetically pleasing body proportions, with a ratio of 10- to 12 1/2-inch differences among bust, waist, and hips. These standards are based strictly on Western concepts of what is ideal. There will never be a universally acceptable standard because of the variety of anatomical figure types. Other countries set their own standards based on their own regional concept of the ideal figure.

Some manufacturers prefer not to use standardized measurements. They want the flexibility to change measurements quickly to suit customer needs. Increasing world trade has created a need for a central database that contains regional measurements for non-Western trading partners. Computer technology may ultimately provide ready access to such information.

Do Perfect Ratio Measurements Mean Perfect Proportions?

Not necessarily so. Bulk (flesh) distribution around the skeletal frame must be considered—for example, large back and small bust; large bust and small back; wide, flat front waist; and rounded, protruding back waist; large hip and flat stomach; protruding stomach and flat buttocks.



Forms: Willow-Caned to Humanlike

For the past 140 years, forms have adapted to the whims of fashion by constantly being modified in shape and measurements to satisfy the needs of changing silhouettes. Original forms were shapeless, willow-caned models with woven mounds that were padded to individual specifications. Today's forms are partially made by hand. They are framed in metal, molded with papier-mâché, laid over with canvas, and covered in a princess garment of linen. The seam lines and princess stylelines of the cover garment set the boundaries between the front and back bodice. The waistline seam defines the upper and lower torso. In the manufacturing process, human errors can and do occur. Before measuring, examine the form for possible errors. Make adjustments by following the instructions in the Measuring Form and Model Section later in this chapter. Forms of today represent the most common dimension within each size group of males and females, children to adults. Forms come with detachable arms and legs and collapsible shoulders for ease of use.

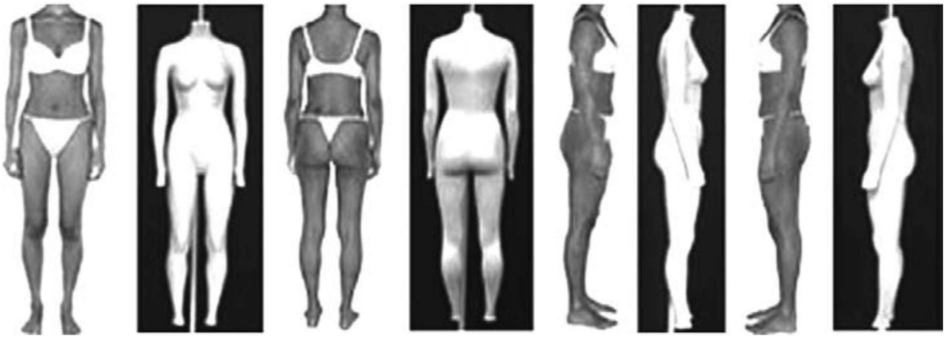
Who Sets Form Measurements?

Form measurements are determined by the consumer's feedback to the buyers and buyer feedback to the form company. Forms can be ordered to the specific measurements of a private client; and companies can order forms with special measurements reflecting their consumer.

Cloning Fit Models

There are a number of new innovations in the development of forms. Material used in humanlike forms use a liquid-type substance instead of canvas and metal. I am familiar with TUKAforms and have seen them being developed. The forms are an exact replica of the company's fit model. The model is scanned in a cube with a light-emitting device that produces a perfect replica of the model. Forms are made with a liquid substance that, when solidified, feels like skin and flesh and can be penetrated with pins without harm to the form. The model form helps patternmakers and designers to develop garments with more accuracy in less time and without a live model.

Courtesy of TukaTech



PATTERN INDUSTRY STANDARDS

In response to national standards and consumers' needs, the pattern industry established the Measurement Standard Committee, which devised its own standard set of figure types and sizes. The examples below are composites of the pattern industry designated figure types by age and height categories. The measurements are listed on the pattern envelope. Their standards may already be influenced by the American Society for Testing and Materials (ASTM) and Textile Clothing Technology Corp's [TC^2] USA National Size Survey measurements.

DEPARTMENT STORE STANDARDS

Department stores and catalog merchants such as Sears, Montgomery Ward, and Spiegel have developed their own strict specifications to satisfy the needs of their customers. Some use or have used National Bureau of Standards measurements. Others conduct surveys and samplings of the population by sending survey forms to their consumers, requesting their measurements. This information is compiled, and specification sheets are given to the manufacturer to use in developing patterns for their consumers. JCPenney, Victoria's Secret, and Jockey now use ASTM [TC]^2 USA National Size Survey for their measurements.

OTHER ATTEMPTS AT STANDARDIZATION

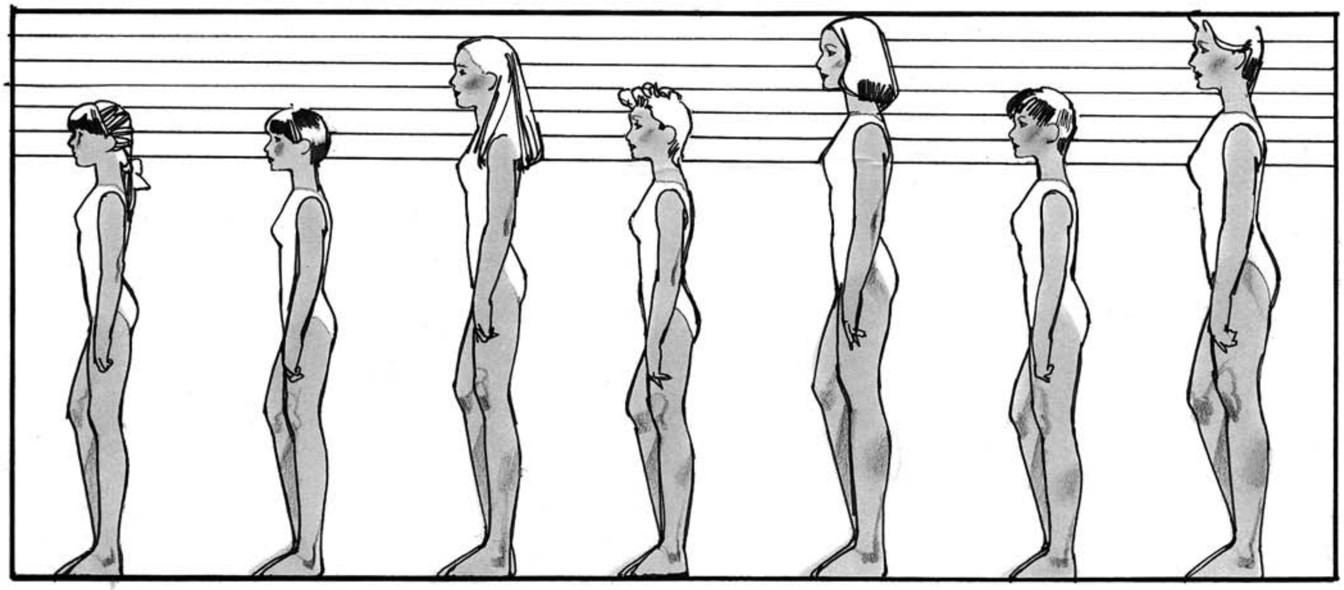
Attempts to standardize sizes in America originally began in the late 1800s, when manufacturers mass-produced farm labor uniforms in small, medium, and large sizes—which proved less than ideal. The next effort was made by the military in its attempt to mass-produce well-fitting uniforms. In 1901, the federal government created the National Bureau of Standards, a nonregulatory agency for the purpose of standardizing measurements. By 1970, NBS had developed a complete size range standard based on frequency measurements from large segments of the population.

ASTM STANDARDS

The American Society for Testing and Materials partnered with [TC]^2 USA National Size Survey for the purpose of standardizing body measurements for better fitting apparel. The research was intensive, measuring 10,000 subjects whose bodies were scanned. Two hundred points were chosen for accurate body measurements. For additional information or to order size standards, contact ASTM at 100 Barr Harbor Dr., West Conshohocken, PA 19428; phone: (610) 832-9585. The following tables of measurement are available:

- Children: Sizes 2 to 6X/7, order # (D5826)
- Adult Female Misses: Sizes 2 to 20, order # (D5585)
- Women age 55 and older, order # (D5586)
- Menswear: order #(D6240–98) 2006

Composite of Figure Types



5'1" to 5'3"
Young junior/Teen
5/6–15/16

5' to 5'1"
Junior petite
3jp–13jp

5'4" to 5'5"
Junior
5–15

5'2" to 5'3"
Miss petite
6mp–16mp

5'5" to 5'6"
Miss
6–20

5'2" to 5'3"
Half-size
$10\frac{1}{2}$–$24\frac{1}{2}$

5'5" to 5'6"
Woman
38–50

Figure Analysis for Personal Use or for Client

If your figure is less than perfect, remember it's the pattern that must be perfect, not your figure.

To begin the process, it will be necessary to assess the unique characteristics of the body being measured. The model should wear a leotard over regularly worn foundation garments for taking measurements. See the Personal Measurement Chart later in this chapter.

Each group of figure variations is alphabetized (A through J), and each figure within the group is given a number. Circle the number that applies to your figure, then record it under the appropriate letter on the Personal Measurement Chart.

A: Head Height—A Measuring Device for Comparison

- Measure the length of your head from the top of the crown to chin level. Use the head measurement to mark each head length down from the chin.
- The blue lines behind the sample models indicate head levels. The broken lines crossing the sample models indicate where the bust point, hip, crotch, and knee are in relation to the standard head marks of the perfect model with the blue leotard.
- Compare your head locations with the model. Record if the locations are above or below head levels at: bust ___, waist ___, hip ___, knee ___.

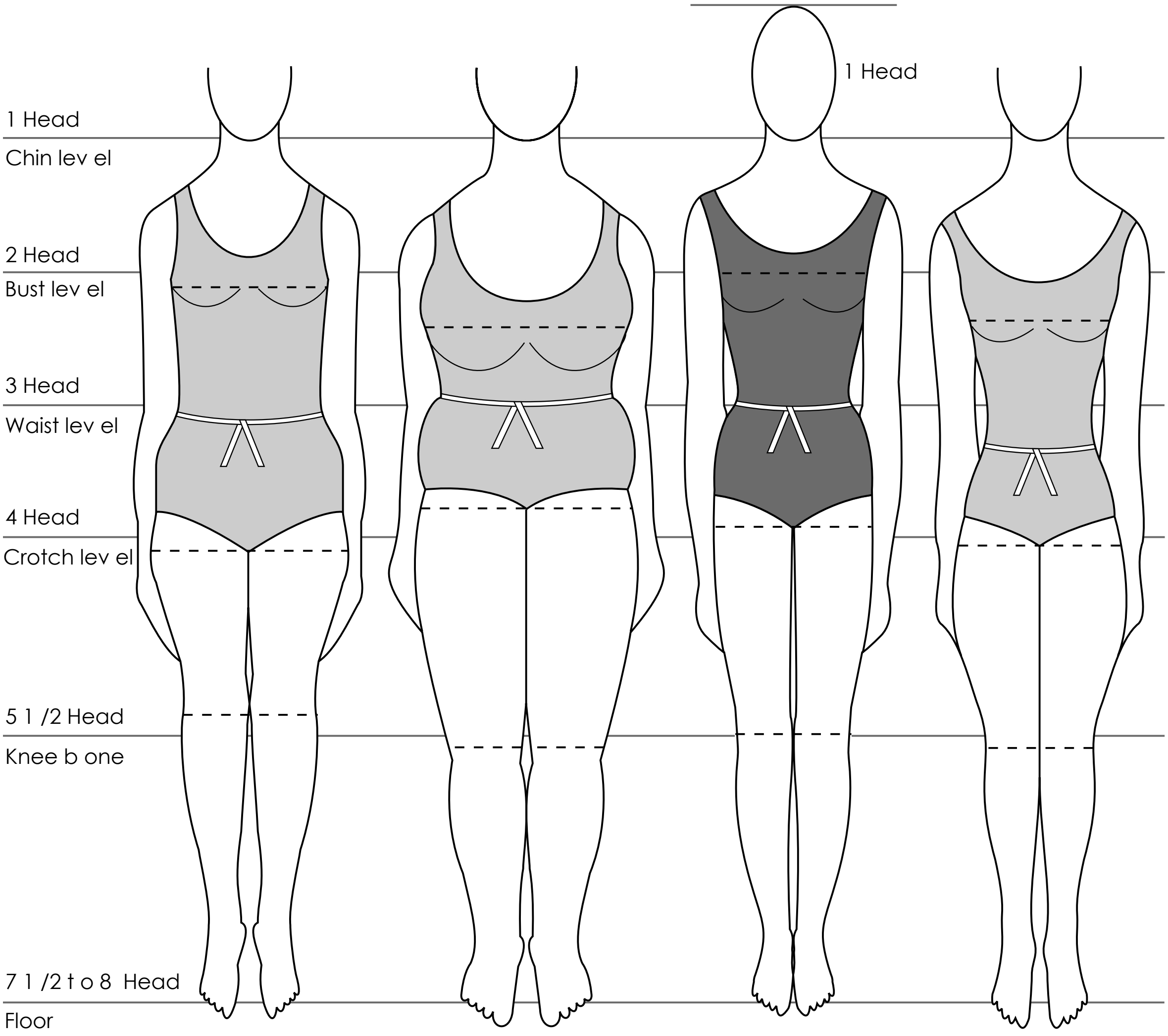
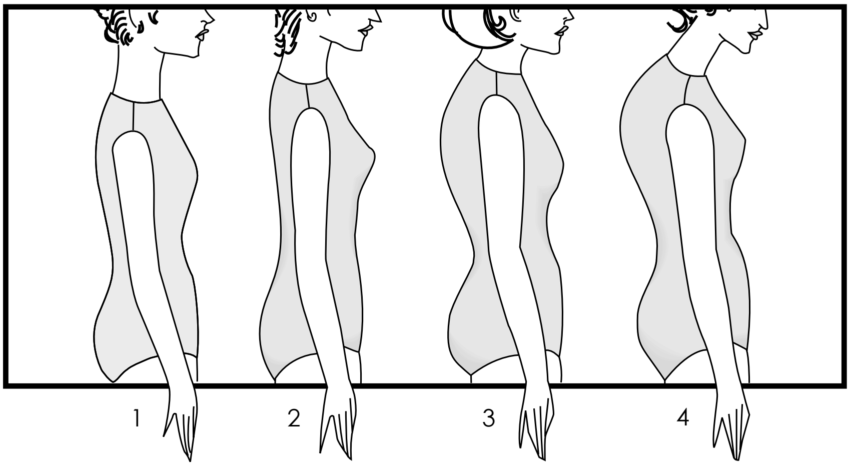


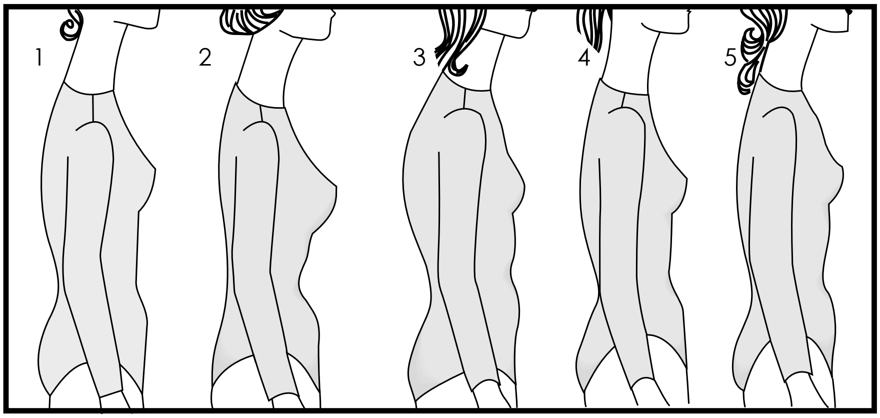
Figure Analysis Continued

The following discussion illustrates anatomical variations. Circle the number(s) that apply to your figure. Record your figure in spaces A through N. This information is helpful in developing your personalized basic pattern set.


Back types

B: Back Types

1. *Ideal:* Spine has a soft curve and slight protruding buttock.
2. *Flat:* Straight back causes buttocks to be prominent.
3. *Rounded:* Dominant spine curve and prominent buttock.
4. *Dowager's hump:* Shoulders fall forward in the extreme.

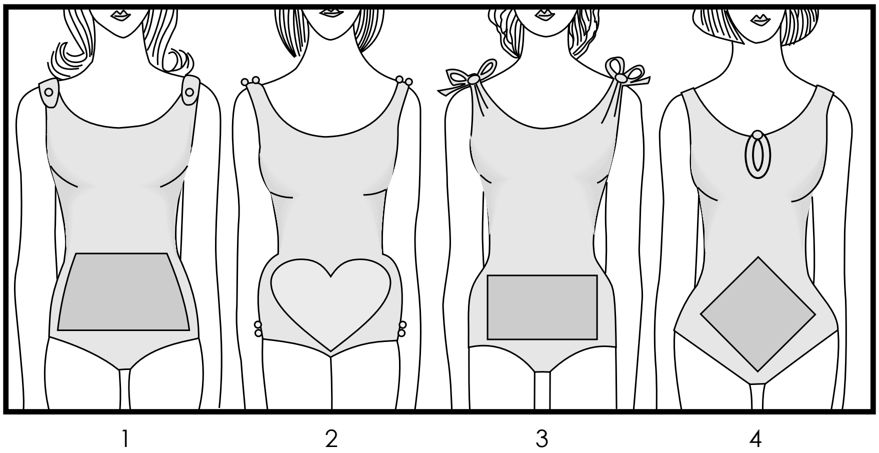

Back/Bust Relationship

C: Back/Bust/Chest Relationship

1. *Ideal:* Bust/buttocks protrude in a harmonious relationship.
2. *Narrow back/large bust.*
3. *Full back/small bust.*
4. *Hollow inward chest.*
5. *Pigeon, a dominant chest bone.*

D: Hip Types

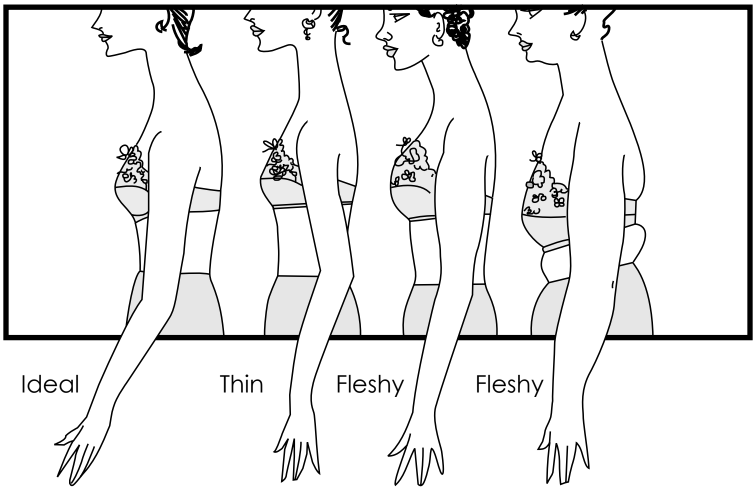
1. *Ideal:* Pleasing proportion among waist/shoulders/hips.
2. *Heart shape:* Protruding roundness from waist. Legs tend to meet at crotch.
3. *Square shape:* Square out from side seams.
4. *Diamond shape:* Widest part of the hip bone emphasized by a smaller waist and shoulder.


Hip type

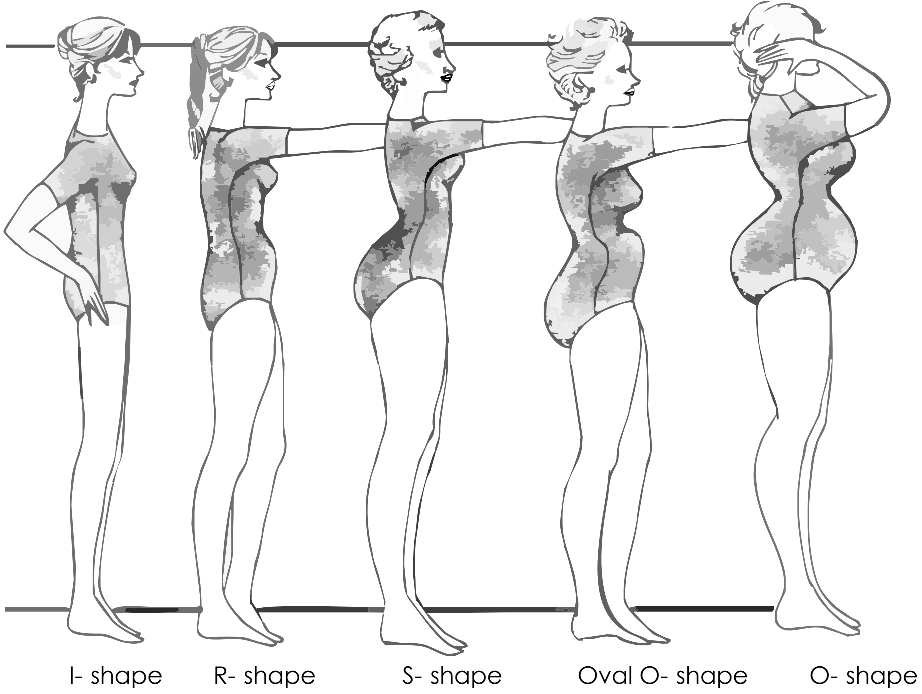
E: Arm Types

1. *Ideal:* Flesh and bone in perfect harmony.
2. *Thin:* Boney appearance, with prominent wrist, elbow, and shoulder bones.
3. *Full arms:* Flesh starting to fall from top of the arm.
4. *Fleshiness:* Bone structure covered with flesh. Flesh has fallen from top of the arm.

Arm Types



Abdominal/Thigh Relationship

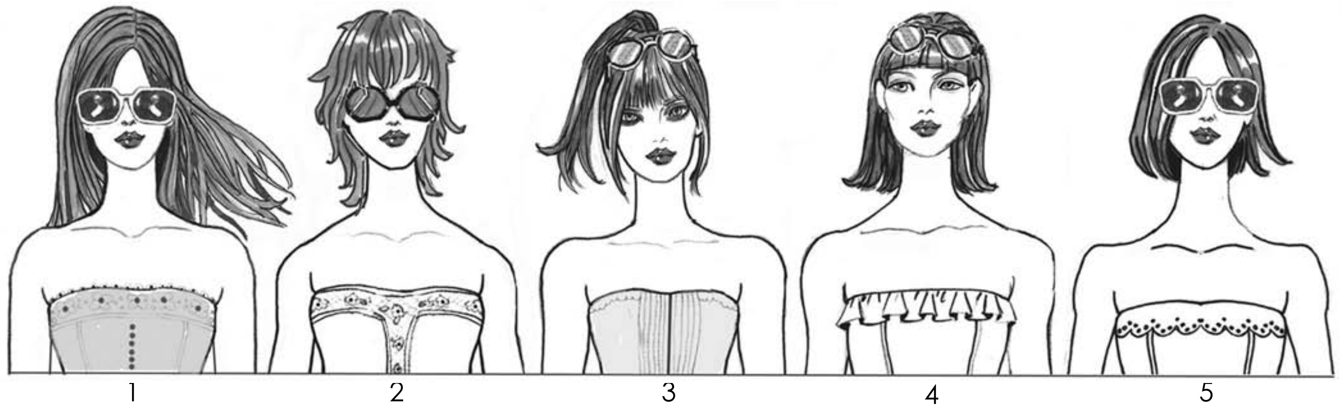


F: Abdominal/Thigh

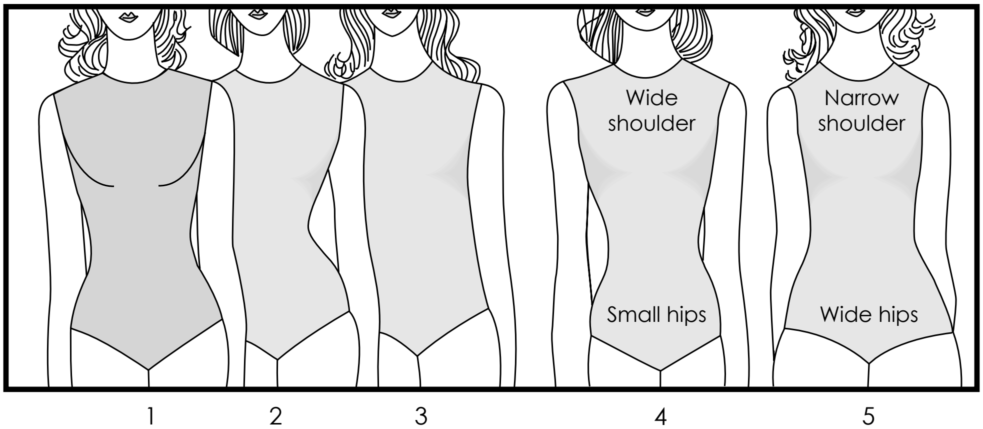
To compare, have the assistant view your profile. If your shape differs from the examples, record on the Personal Measurement Chart under "Deviation."

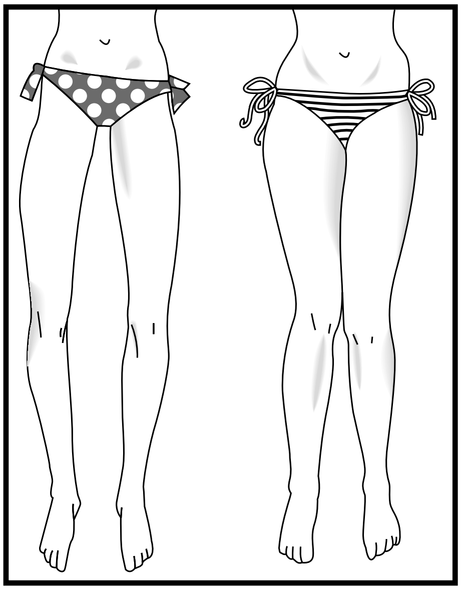
G: Shoulder Types

1. *Ideal:* Shoulder slope is approximately 25°.
2. *Slopped shoulder:* More than 25°.
3. *Square shoulder:* Near 90° angle with neck.
4. *Muscular:* Neck to shoulder.
5. *Bony:* Dominant clavicle.

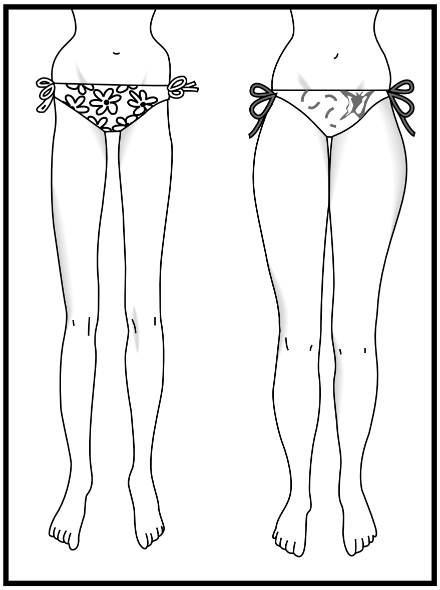


Shoulder/Hip relationship


Wide shoulder
Small hips
Narrow shoulder
Wide hips
1
2
3
4
5



1- Bowlegs 2- Knock- knees



3- Thin 4- Full thigh

H: Shoulder/Waist/Hip

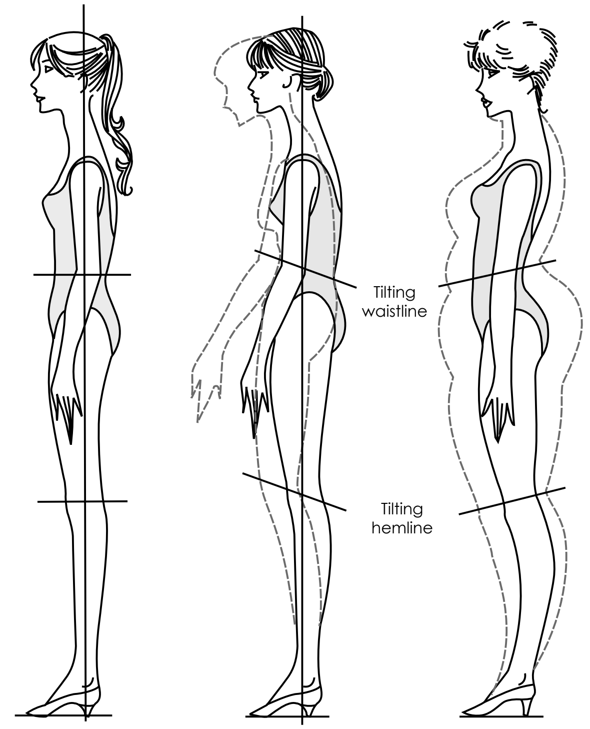
1. *Ideal:* Shoulder/waist/hip in harmony.
2. *Hourglass:* Created by a small waist.
3. *Straight line:* Slight waist definition.
4. *Wide shoulder/narrow waist.*
5. *Narrow shoulder/wide hips.*

I: Leg Types

1 through 4. Identified by their names.

J: Figure Stance

The model's stance affects the hang and balance of garments. Pattern adjustment will be required.


Tilting waistline
Tilting hemline

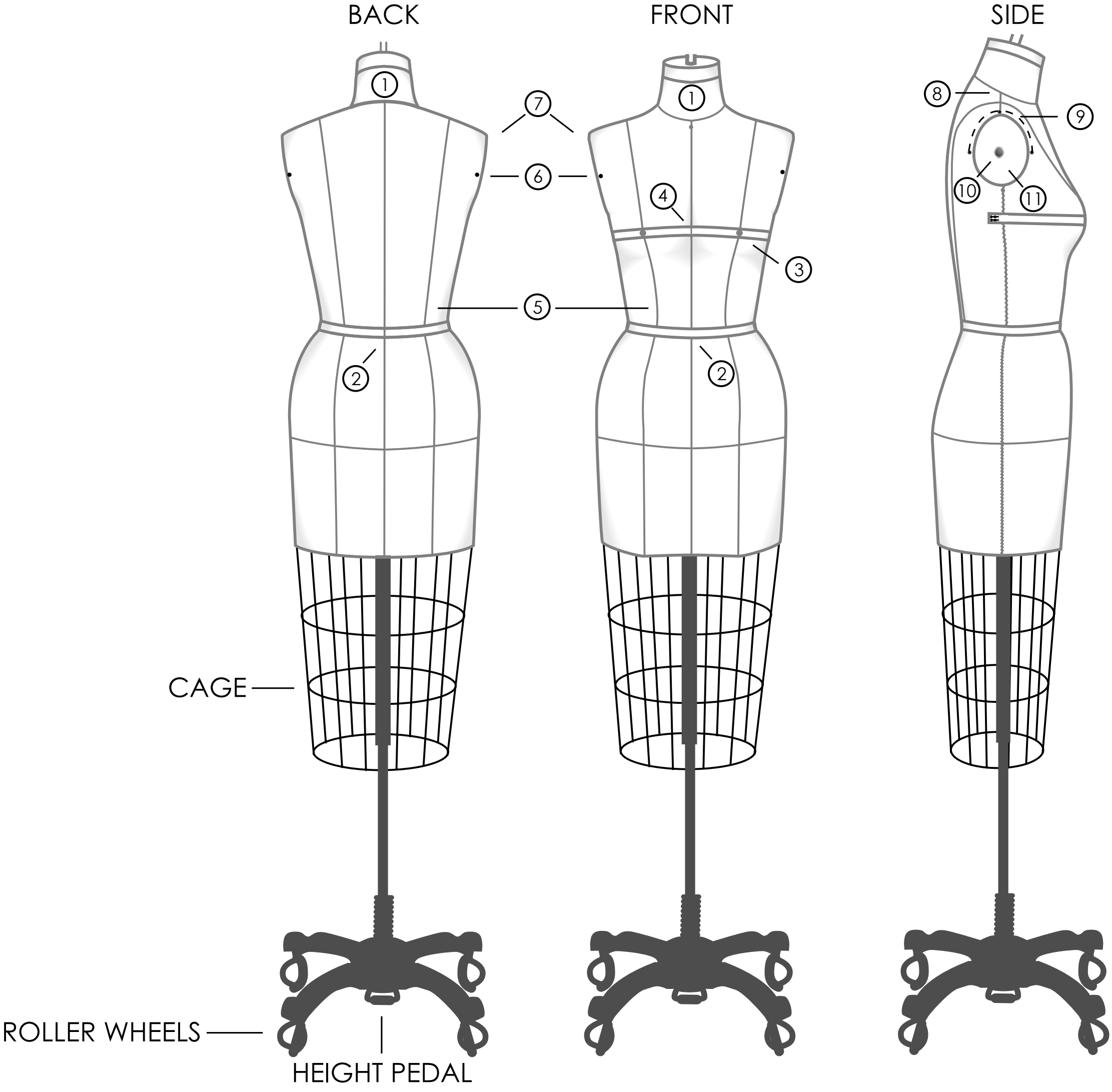
1- Perfect 2- Bent 3- Upright

LANDMARK TERMS

To measure accurately, you must know where the landmarks are and identify them point to point for specific locations. The following landmarks identify the parts of the form that are referred to when measuring from one landmark to another. Numbers refer to both the front and back wherever indicated.

Personal fit. The instruction applies to models that will be measured for drafting the basic patterns.

1. Center front neck
   Center back neck
2. Center front waist
   Center back waist
3. Bust points
4. Center front bust level (between bust points)
5. Side front (princess)
   Side back (princess)
6. Mid-armhole front
   Mid-armhole back (at level with plate screw)
7. Shoulder tip
8. Shoulder at neck (shoulder/neck)
9. Armhole ridge or roll line
10. Plate screw
11. Armhole plate



Symbol Key

CF = Center front
CB = Center back
BP = Bust point
SS = Side seam
SW = Side waist
SH = Shoulder
HBL = Horizontal balance line
SH-TIP = Shoulder tip

MEASURING FORM AND MODEL

Forms are sometimes imperfect, with measurements not always equal on each side of the center. Check and remark the side seams if necessary. The shoulder line may be misplaced, causing a sleeve to hang out of alignment. (This problem is corrected at the time of the fitting.)

Drafting depends on measurements taken from a form or model. Measurement must be taken carefully to avoid fitting problems.

Personal measurements. Reference to personal fit *(shown in italics)* will accompany some of the instructions.

Preparing the Form for Measuring

Figure 1

- *Bust bridge:* Cut a strip of cloth 1 1/2 × 26 inches. Fold edges to center and fold again. Place across bust points, ending 1 inch past the side seam. Push pins through to secure. Trim unneeded length. Thrust pins through bust points. Mark center line.
- *Waistline:* Replace waistline tape, if damaged.

Figure 2

- *Pinhead guides:* Thrust pins through shoulder tip at the ridge, or roll line, mid-armhole at level with the plate screw, and 3/8 inch below the center front neck.

Figure 3

- *Armhole depth chart:* To locate armhole depth, choose the measurement from the Armhole Depth Chart below that corresponds to the form size. Measure down from the armhole plate and thrust a pin head at the location. Grade up or down by 1/8 inch for smaller or larger sizes. As with establishing a set of measurements, they are to be test fitted with sleeve attached. Make adjustments if necessary.

Size 3/4—3/8″	Size 11/12—3/4″
Size 5/6—3/8″	Size 13/14—1″
Size 7/8—1/2″	Size 15/16—1 1/8″
Size 9/10—5/8″	Size 18—1 1/4″

- To determine cap height, measure up from armhole depth to shoulder tip and add 3/8 inch.

Figure 1

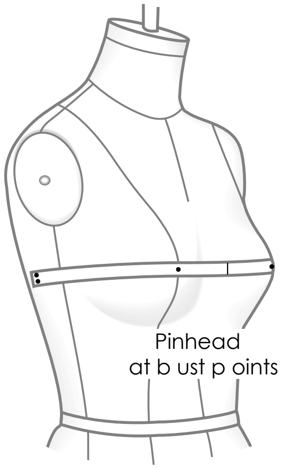


Figure 2

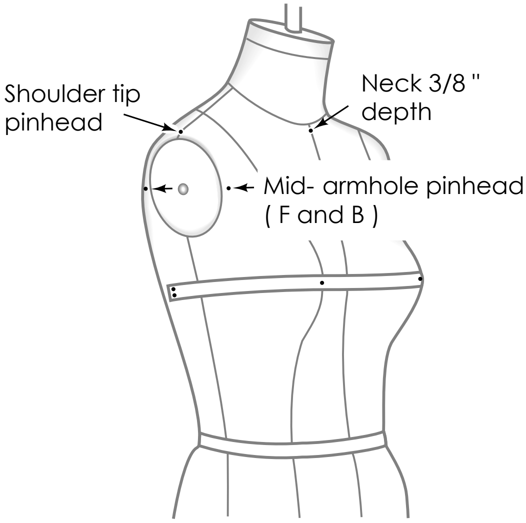
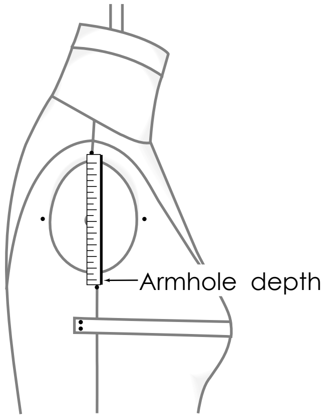


Figure 3

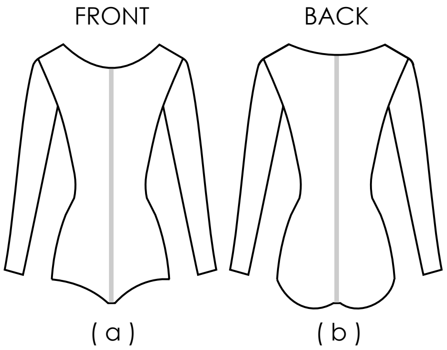


Preparing the Model for Measuring

Have a friend assist in measuring and recording on a copy of the Personal Measurement Chart later in this chapter.

The model should wear a *bodysuit* or *leotard* with regular foundation garments worn underneath.

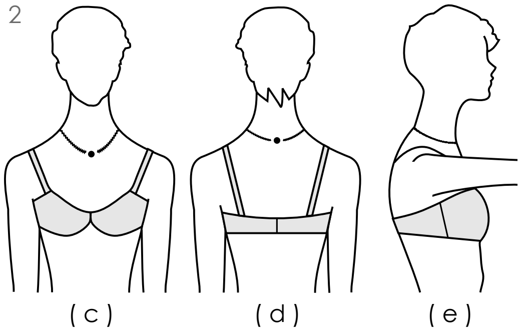
Figure 1



Figures 1a, b

Marking the garment: Lay garment flat. Draw a line down the center front and back with tailor's chalk, or fine-point washable pen.

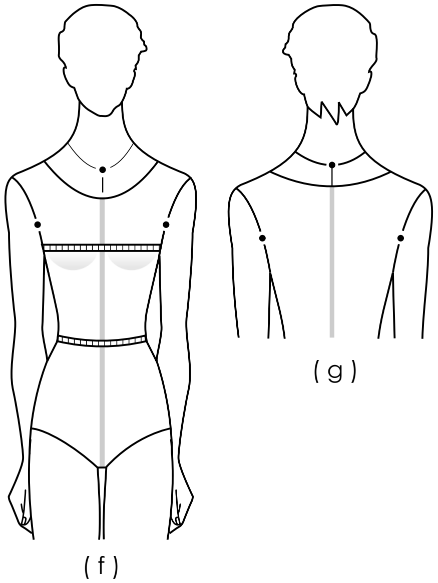
Figure 2



Figures 2c, d, e

Neckline: Dot mark center of the clavicle bone at center front and the dominant bone (nape) at center back neck. To complete the neckline shape, place a delicate chain necklace around the model's neck, touching dot marks. Carefully draw neckline curve with a fine-point washable pen.

Figure 3



Figures 3f, g, h, i

Dressing the model: The front chalk line is placed between the busts, navel, and crotch. The back chalk line is centered along the spine line, crease of the buttocks, and between the legs. The front and back models (f and g) are marked, as follows:

Completing neckline: With ruler placed at the center lines and to the dot marks of clavicle and nape, draw center lines to neck.

With ruler on shoulder seam, draw line to neck (c).

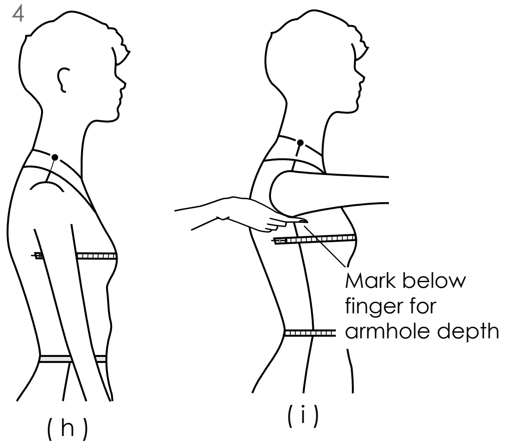
Mid-armholes: With arms to the sides, mark the ends of crease line with dots, or with straight pins crossed.

Armhole depth: Place finger under the arm where back muscle and arm articulate. Chalk-mark at bottom of the finger at side seam (i).

Bust bridge: See Figure 1 on previous page for instructions.

Waistline band: Place a belt, elastic, or band comfortably (not too tight) around the waist.

Figure 4


Mark below finger for armhole depth
(h)
(i)

Taking Measurements

- Place the metal tip end of the tape measure at one reference point and extend to the next reference point when taking measurements.
- Record measurements on the Model Measurement (Form or Chart or the Personal Measurement Chart found at the end of the chapter).
- Numbers in parentheses correspond with those on the chart.
- Arc measurements are taken from center lines to the side seam.
- The same half of the front and back of the form is measured.

Draw line (represents the horizontal balance line below waist)

Figure 1

BACK

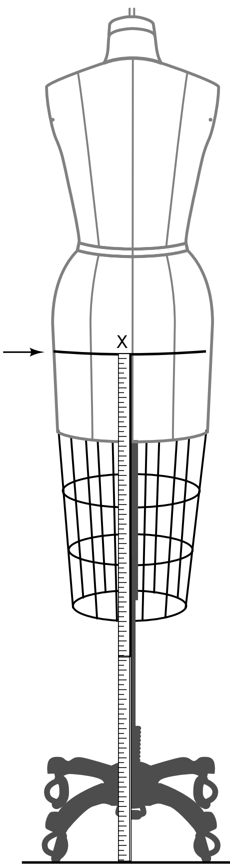


Figure 2

FRONT

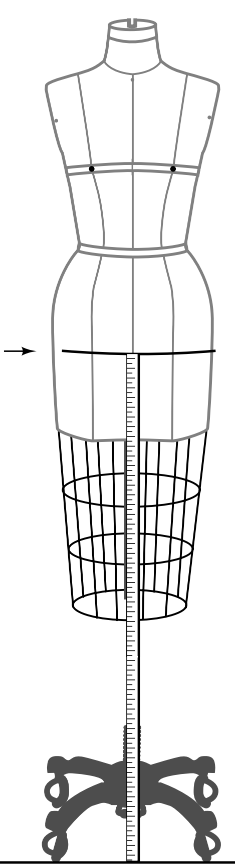
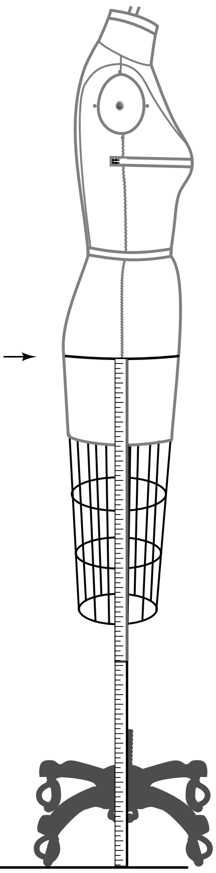


Figure 3

SIDE



HORIZONTAL BALANCE LINE (HBL)

Figures 1, 2, and 3

- Measure up from the floor to the pin mark (X) at center front (Figure 1).
- Use this measurement to measure up from the floor and pin mark center back and side seams. Pin mark at princess lines. Recheck measurements (Figures 1 and 3).
- Draw a line around the hip touching each of the pin marks, or use adhesive tape to mark the hipline. The standard hip depth is 6 to 7 inches down from the center front waist for juniors and petites, 8 to 9 inches down for missy size.

Personal fit. Follow the instructions very carefully and double check. If incorrect, the hemline of the skirt will not hang parallel with the floor.

Figure 4

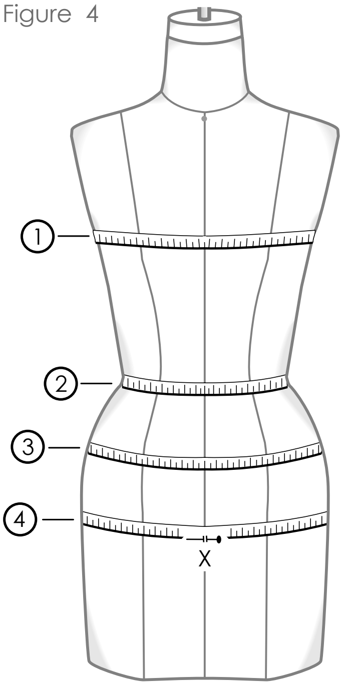
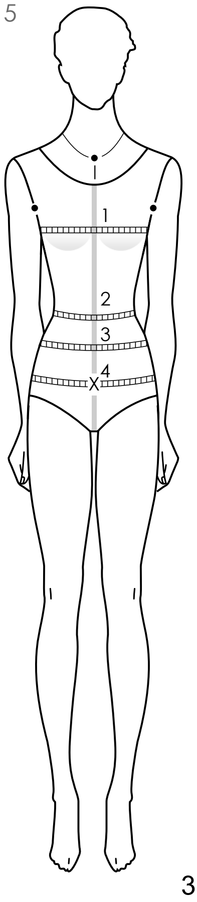


Figure 5



CIRCUMFERENCE FOR FORM AND MODEL MEASUREMENTS

Figures 4 and 5

- *Bust (1).* Across bust points and back.
- *Waist (2).* Around waist.
- *Abdomen (3).* Three inches below waist.
- *Hip (4).* Measure widest area with tape parallel with floor. Pin to mark hip level at center front (referred to as X-point).

HORIZONTAL ARC FOR FORM AND MODEL MEASUREMENTS

Front

Figure 6

- *Across shoulder (14).* Shoulder tip to center front neck.
- *Across chest (15).* Center front to 1 inch above mid-armhole (pinhead mark).
- *Bust arc (17).* Center front, over bust point, ending 2 inches below armplate at side seam.
- *Bust span (10).* Place tape across bust points; divide in half for measurement.
- *Waist arc (19).* Center front waist to side waist seam.
- *Dart placement (20).* Center front to side front (princess line).
- *Abdomen arc (22).* Center front to side seam, starting 3 inches down from waist.
- *Hip arc (23).* Center front to side seam on HBL line.
- *Hip depth (25).* Center front to HBL line.

Figure 6

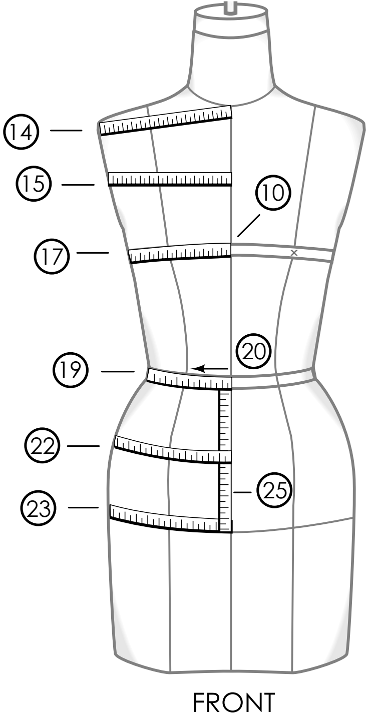
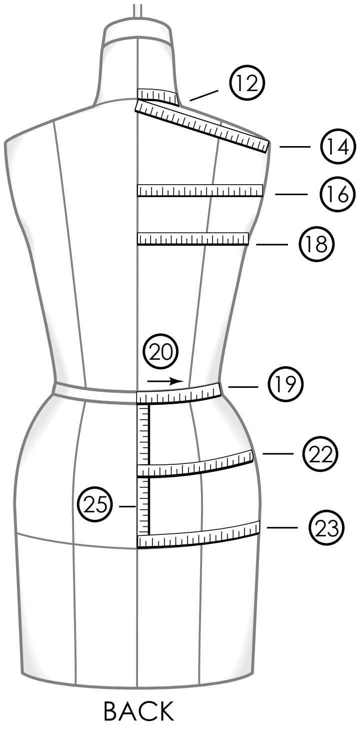


Figure 7



Back

Figure 7

- *Back neck (12).* Center back neck to shoulder at neck.
- *Across shoulder (14).* Shoulder tip to center back neck.
- *Across back (16).* Center back to 1 inch above the mid-armhole at ridge of pinhead.
- *Back arc (18).* Center back to bottom of arm plate.
- *Waist arc (19).* Center back waist to side waist seam.
- *Dart placement (20).* Center back waist to side back (princess line).
- *Abdomen arc (22).* Center back to side seam, starting 3 inches down from waist.
- *Hip arc (23).* Center back to side seam on HBL line.
- *Hip depth (25).* Center back waist to HBL line.

Model for Personal Fit

Figures 8a, b

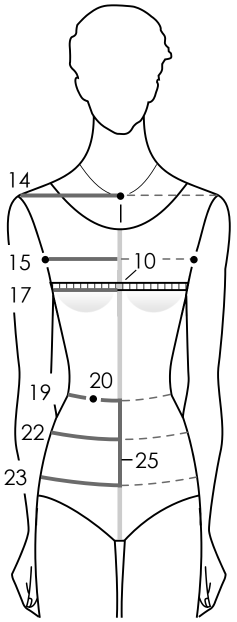


Figure 8a

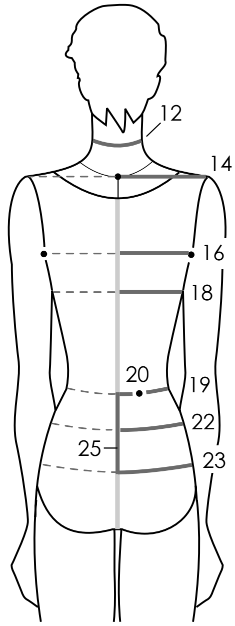


Figure 8b

Measurements can be taken across the model from one landmark to the other, then divided in half and recorded. If the center lines of the front and back are definitely centered, measure from the center line to the side seams of the front and back bodice.

Neck Circumference

Measure around the upper neck, divide by 5, and record in space #12.

VERTICAL MEASUREMENTS FOR FORM AND MODEL

Figures 9 and 10

- *Side length (11).* Pin mark below armplate at side seam to side waist.
- *Shoulder length (13).* Shoulder tip to neck.
- *Side hip depth (26).* Side waist to HBL, on side of form being measured.
- *Bust radius (9).* Measure from bust point ending under bust mound to rib above.

Front and Back—Form and Model

Figures 11, 12, 13, 14

- *Center length (5).* Mark neck to waist (over bridge).
- *Full length (6).* Waist to shoulder at neck, parallel with center lines.
- *Shoulder slope (7).* Center line at waist to the shoulder tip (mark).
- *Bust depth (9).* Shoulder tip to bust point.

Figure 11

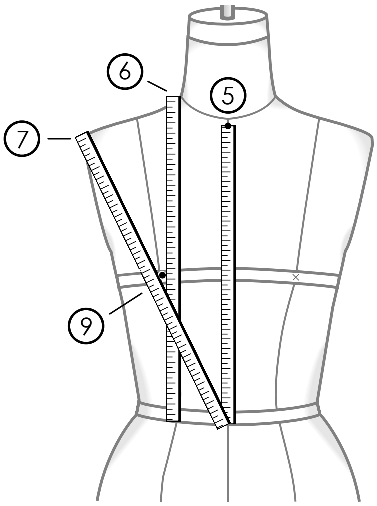


Figure 13

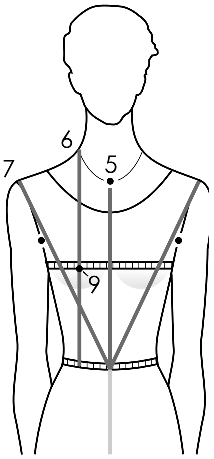


Figure 12

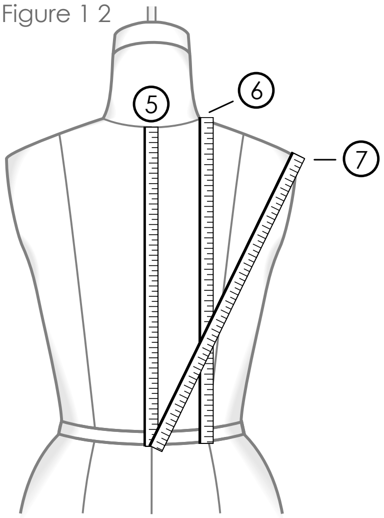


Figure 14

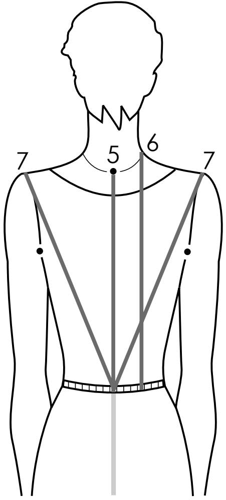


Figure 9

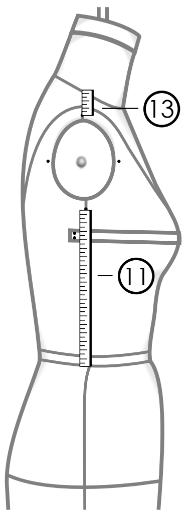
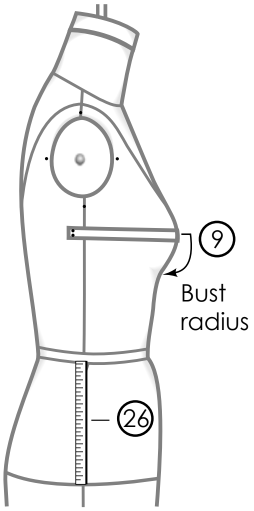


Figure 10



Personal Fit: Asymmetric Verification

Shoulder slope: Measure on right and left sides. If the slope measurements differ more than an 1/8 inch, the shoulders are asymmetric.

Side hip: Measure both side (see #26), if measurements differ more that 1/8 inch, the hip is asymmetric. The patterns will be drafted on folded paper and discussed later.

Figure 15 and 16: New Strap Measurement

Place metal tip of the measuring tape at corner of shoulder/neck to bottom of the waist band at the side seam and record.

Figure 15

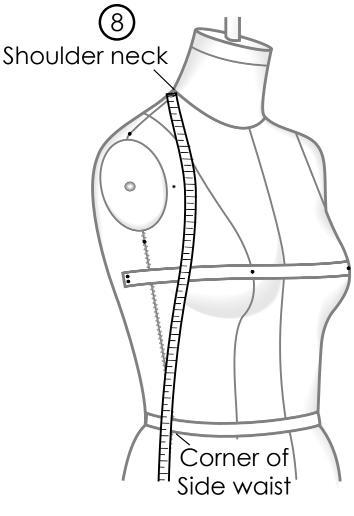
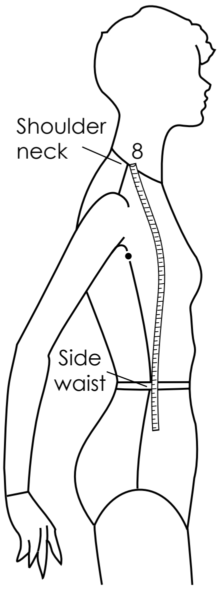


Figure 16



Standard Measurement Chart

CIRCUMFERENCE MEASUREMENTS	Grade:	1″	1″	1″	1 1/2″	1 1/2″	1 1/2″	2″
(Ease not included)	Size:	6	8	10	12	14	16	18
1. Bust:		34	35	36	37-1/2	39	40-1/2	42-1/2
2. Waist:		25-1/2	26-1/2	27-1/2	29	30-1/2	32	34
3. Abdomen:		32	33	34	35-1/2	37	38-1/2	40-1/2
4. Hip:		35-1/2	36-1/2	37-1/2	39	40-1/2	42	44
UPPER TORSO								
5. Center length:								
Front		14-1/8	14-3/8	14-5/8	14-7/8	15-1/8	15-3/8	15-5/8
Back		16-1/4	16-1/2	16-3/4	17	17-1/4	17-1/2	17-3/4
6. Full length:								
Front		16-7/8	17-1/4	17-5/8	18	18-3/8	18-3/4	19-1/8
Back		16-3/4	17-1/8	17-1/2	17-7/8	18-1/4	18-5/8	19
7. Shoulder slope:								
Front		17-1/16	17-3/8	17-3/4	18-1/8	18-1/2	18-7/8	19-1/4
Back		16-5/16	16-5/8	17	17-3/8	17-3/4	18-1/8	18-1/2
8. New Strap:		17	17-3/8	17-3/4	18-3/16	18-5/8	19-1/16	19-9/16
9. Bust depth:		9-1/8	9-5/16	9-1/2	9-11/16	9-7/8	10-1/16	10-1/4
Radius:		3	3	3	3	3	3	3
10. Bust span:		3-5/8	3-3/4	3-7/8	4-1/16	4-1/4	4-7/16	4-11/16
11. Side length:		8-1/8	8-1/4	8-3/8	8-1/2	8-5/8	8-3/4	8-7/8
12. Back neck:		2-5/8	2-7/8	3	3-1/8	3-1/4	3-3/8	3-1/2
13. Shoulder length:		5-1/8	5-3/16	5-1/4	5-3/8	5-1/2	5-5/8	5-13/16
14. Across shoulder:								
Front		7-1/2	7-5/8	7-3/4	7-15/16	8-1/8	8-5/16	8-9/16
Back		7-3/4	7-7/8	8	8-3/16	8-3/8	8-9/16	8-13/16
15. Across chest:		6-1/2	6-5/8	6-3/4	6-15/16	7-1/8	7-5/16	7-9/16
16. Across back:		6-3/4	6-7/8	7	7-3/16	7-3/8	7-9/16	7-13/16
17. Bust arc:		9-1/2	9-3/4	10	10-3/8	10-3/4	11-1/8	11-5/8
18. Back arc:		8-1/8	8-3/8	8-5/8	9	9-3/8	9-3/4	10-1/4
19. Waist arc:								
Front		6-1/2	6-3/4	7	7-3/8	7-3/4	8-1/8	8-5/8
Back		6-1/8	6-3/8	6-5/8	7	7-3/8	7-3/4	8-1/4
20. Dart Placement:								
Front		3	3-1/8	3-1/4	3-7/16	3-5/8	3-13/16	4-1/16
Back		3	3-1/8	3-1/4	3-7/16	3-5/8	3-13/16	4-1/16
21. Number not used								
LOWER TORSO								
22. Abdomen:								
Front		7-3/4	8	8-1/4	8-5/8	9	9-3/8	9-7/8
Back		8	8-1/4	8-1/2	8-7/8	9-1/4	9-5/8	10-1/8
23. Hip arc:								
Front		8-5/8	8-7/8	9-1/8	9-1/2	9-7/8	10-1/4	10-3/4
Back		9-1/8	9-3/8	9-5/8	10	10-3/8	10-3/4	11-1/4
24. Crotch depth:		9-1/2	9-3/4	10	10-1/4	10-1/2	10-3/4	11
25. Hip depth:								
Center front		7-1/2	7-3/4	8	8-1/4	8-1/2	8-3/4	9
Center back		7-3/8	7-5/8	7-7/8	8-1/8	8-3/8	8-5/8	8-7/8
26. Side hip depth:		7-5/8	7-7/8	8-1/8	8-3/8	8-5/8	8-7/8	9-1/8
27. Waist to knee:		22	22-1/2	23	23-1/2	24	24-1/2	25
Waist to ankle:		37	37-1/2	38	38-1/2	39	39-1/2	40
Waist to floor:		39	39-1/2	40	40-1/2	41	41-1/2	42
28. Crotch length:		24-1/2	25-1/4	26	26-3/4	27-1/2	28-1/4	29
Vertical trunk		59	60-1/2	62	63-1/2	65	66-1/2	68
29. Upper thigh:		20	20-3/4	21-1/2	22-1/2	23-1/2	24-1/2	25-3/4
Mid thigh:		18-1/2	19	19-1/2	20-1/4	21	21-3/4	22-3/4
30. Knee:		13	13-1/2	14	14-1/2	15	15-1/2	16
31. Calf:		12-1/4	12-5/8	13	13-3/8	13-3/4	14-1/8	14-1/2
32. Ankle:		8-1/2	8-3/4	9	9-1/4	9-1/2	9-3/4	10
Foot entry:		12	12-1/4	12-1/2	12-3/4	13	13-1/4	13-1/2

Missy patterns are available for purchase. Send requests to patterns4sale.com

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

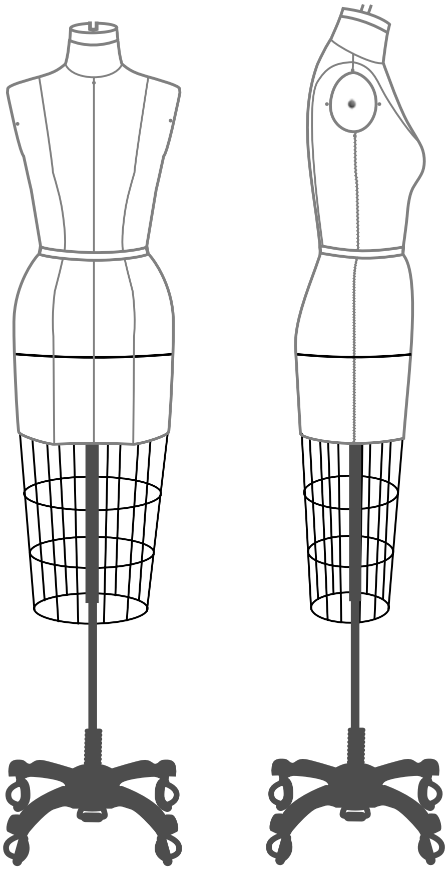
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____
2. Waist: _____
3. Abdomen: _____
4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
   B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
    Front = 1" (2 darts 1/2 to 5/8")
    Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

*Measuring the Arm

Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

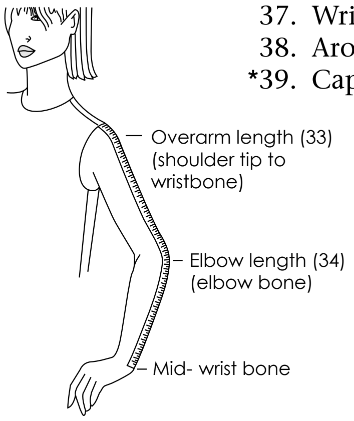
Personal Figure Variations

A. Head height relationship:
   Bust _____ Waist _____
   Crotch _____ Knee _____
B. Bust/back/chest relationship:
   Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
   Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
   Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
   Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
   Front: _____ Back: _____
M. Bust/waist = _____
   Waist/hip = _____
   Bust/hip = _____
N. Other variations: _____

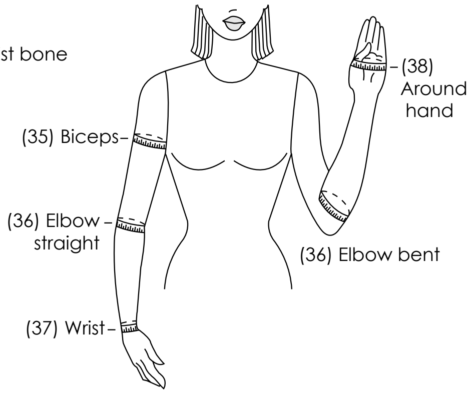
Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____

Length

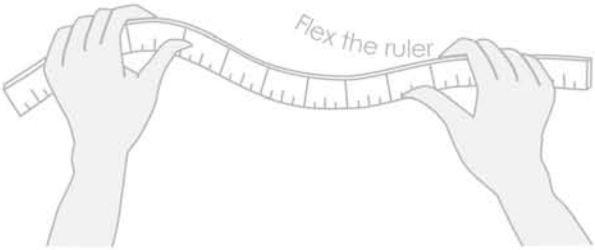

Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone

Circumference



Drafting the Basic Pattern Set

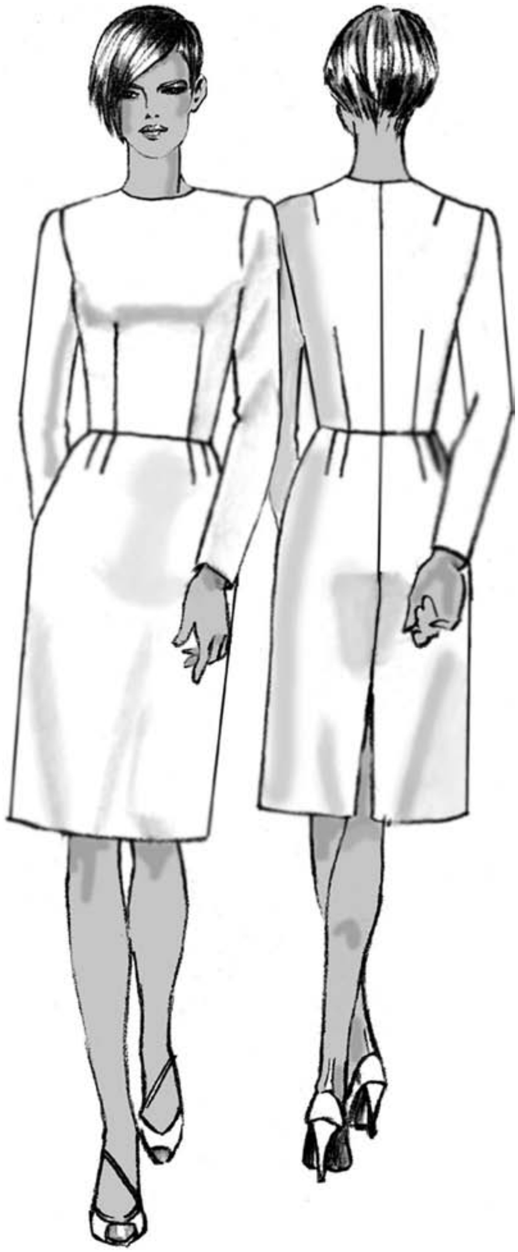
- THE BASIC DRESS FOUNDATION
  - Measurement
  - Creating Basic Patterns
  - Pattern Shapes Described
  - Why Darts?
  - Manual and Computer Drafting
- FRONT BODICE DRAFT
- BACK BODICE DRAFT
  - Increasing and Decreasing Bust
- FITTING THE BODICE
  - Pattern Correction for Asymmetrical Models
  - Imperfect Alignment
- FITTING THE NECKLINE
- FITTING THE ARMHOLE
- SKIRT DRAFT
  - Skirt Front and Back
  - Skirt Back (for Suits and Separates)
  - Fitting the Skirt
- SELF-EVALUATION TRUE AND FALSE TEST
- PREPARING PATTERNS FOR TEST FIT
  - Matching Joining Seams
- THE BASIC SLEEVE
  - Sleeve Terminology
- SLEEVE CAP EASE
  - Armhole Measurement
- SLEEVE MEASUREMENT CHART
- SLEEVE DRAFT
- ADJUSTING SLEEVE TO ARMHOLE OF BODICE
  - Determining Cap Ease
  - Adjusting the Armhole to Accommodate Cap Ease
  - Increase or Decrease the Biceps
  - Increase or Decrease Cap Ease
  - Setting the Sleeve into the Armhole
  - Evaluate the Hang and Fit of the Sleeve
- SEAMLESS WORKING PATTERNS
- SELF-EVALUATION TEST
- COMPLETING THE PATTERN
  - Pattern Information
  - Seam Allowance
  - Basic Pattern Set—Seamed



From Chapter 3 of *Patternmaking for Fashion Design,* 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

THE BASIC DRESS FOUNDATION

Introduction to patternmaking begins with the draft of the basic dress foundation. The dress has all the key dimensions of the form and is represented by the basic pattern set. The basic dress is the very foundation upon which patternmaking, fit, and design are based. The basic dress is made up of five distinct parts: a front and back bodice, a front and back skirt that hang straight from the hip, and slim full-length sleeves. The dress follows the model's outermost parts without contouring the hollow areas. The dress has a series of seams that are directed toward the figure's bulges—the bust, abdomen, buttocks, shoulder blades, and elbows. These seams are the wedge shapes in the draft of the basic pattern set that, when stitched, support the fit of the garment and bridge the hollow areas. The perfect garment will fit comfortably with sufficient ease and in perfect balance and harmony with the balance of the model's stance.



Measurement

The draft can be developed from measurements taken of the form and recorded on the Model Measurement Chart, or measurements can be taken from the Standard Measurement Chart or from personal fit measurements.

For easy reference, record (in the spaces provided in the chart) the measurements by the number in parentheses given in the instructions. Numbers correspond with those of the charts. Letters used in the instructions give the direction that each line is to be drawn. For example, B to C means that the line is drawn from point B to point C, in the amount indicated by the instructions. A shaded outline of the pattern illustrates the purpose of each line drawn on the draft.

Suggestions for correcting fitting problems follow the instructions for drafting the bodice, the skirt, and the sleeve.

Creating Basic Patterns

Creating basic patterns begins with a two-dimensional piece of paper (for drafting) or muslin (for draping). The dimensions of the form or model takes up the necessary space within the paper or muslin, giving shape to the basic patterns. The remaining paper or cloth is cut away (Figure 1).

Pattern Shapes Described

Patterns confine the dimensions of the figure by a series of straight lines (shoulder, side seams, skirt—below hip) and curved lines (necklines, armholes, skirt—above hip). Wedges that appear at the pattern's edge are directed to the apex of the bust, shoulder blade, abdomen, and buttock. Wedges are called *darts* (Figure 2). The basic sleeve will be discussed later.

Why Darts?

Darts retain form or model measurements by confining unneeded fullness at the pattern's edge. The dart gradually releases fullness and terminates at or near the apex of the bust, shoulder blades, buttocks, and abdomen. The dart also has creative value. *It is the dart that converts a two-dimensional pattern into a three-dimensional garment.*

Figure 1

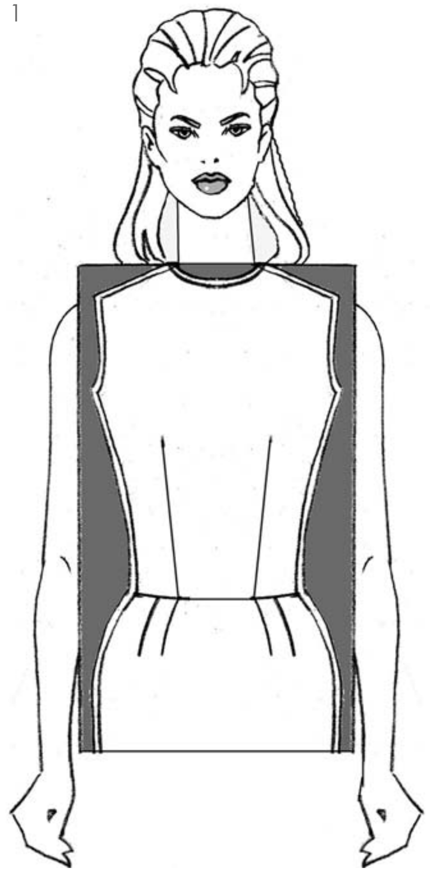
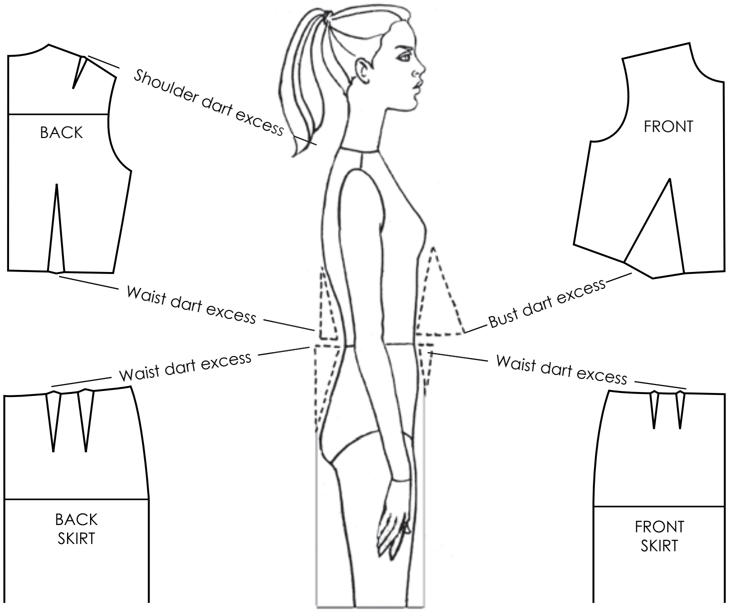


Figure 2



Manual and Computer Drafting

Both manual and computer drafting methods are offered for developing the basic pattern set. Knowing both methods gives the patternmaker more options in generating patterns.

FRONT BODICE DRAFT

Record chosen measurements in the spaces provided below. For models with asymmetric shoulders and/or hips, draft on folded paper using measurements for the high side. After the draft, the pattern is cut and the low side is corrected.

Note: All pattern sizes can be purchased. Send request to patterns4sale@yahoo.com.

The standard draft is based on a missy dress form with about a 10-inch difference between the waist and bust (B cup) for all sizes. For a personal fit, subtract the waist from bust, if more or less than 10 inches (tolerance 1/4 inch), follow the formula suggestion.

Figure 1

- **A to B** = **Full length (6), plus 1/8″** ______
  Draw the line and label.
- **A to C = Across shoulder, less 1/8″** (14) ______
  Square 3″ line down from C line.
- **B to D** = **Center front length (5)** ______
  Mark and square out 4″.
- **B to E = Bust arc (17), plus 1/4″*** ______
  Square out from B, and then square up 11″ from E.*

Figure 1

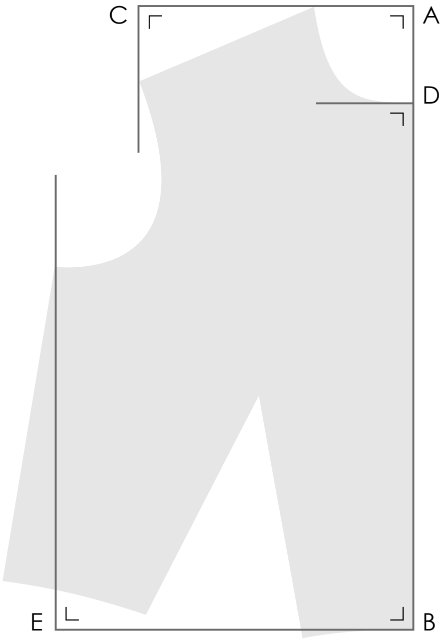
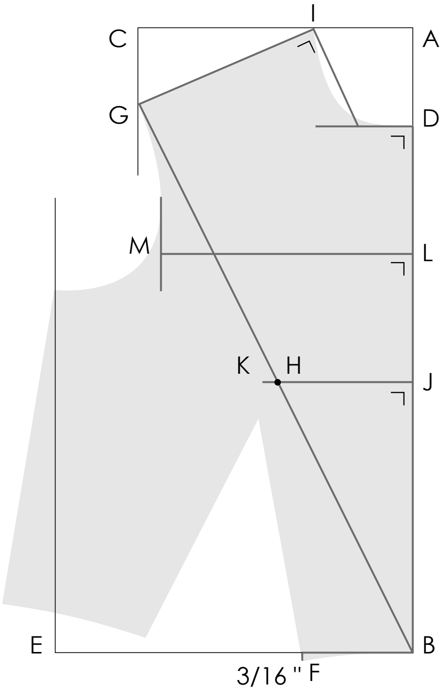


Figure 2

- **B to G = Shoulder slope (7), plus 1/8″**______.
  G touches C line.
- **G to H = Bust depth (9).**______.
  Mark on the G–B line.
- **G to I = Shoulder length (13)** ______.
  Square down from I to intersect with D line.
- **J to K = Bust span, plus 1/4″** (10) ______.
  Square from J at center front through H to K.
- **D to L = One-half of D to J.**
  Mark down from D.
- **L to M = Across chest, plus 1/4″** (15) ______.
  Square a guideline up and down from M.
- **B to F = Dart placement (20)** ______.
  Square down 3/16″ from F.

Figure 2



---

*Ease: Total 1/2 inch at bust level when side seam is drawn.

Figure 3

- **I to N = New strap, plus 1/8″** (8) ______
  Draw line from I to intersect E line.
- **N to O = Side length (11)** ______.
- **N to P** = Mark 1 1/4 inch out from N.
  Personal fit, see formula or adjust after the draft is complete. Tab page 44.
- **O to P =** Side length line is directed to P, and ends when equal to N to O. Draw line from P to F.

Figure 4

Completing waist measurement:

- **P to Q = Waist arc (19), plus 1/4" ease, less B to F______.**

Dart legs: Draw a line from K to F and measure. Draw dart leg from K through Q equal to K to F.

Label R.

Dart point: Center a point 5/8 inch from bust point. Redraw dart legs from this point to F and R.

Draw slight curved lines from B to F and R to P.

Figure 3

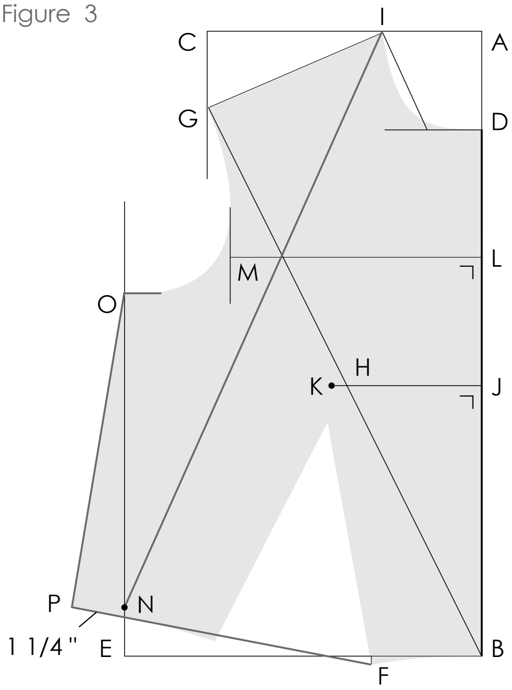
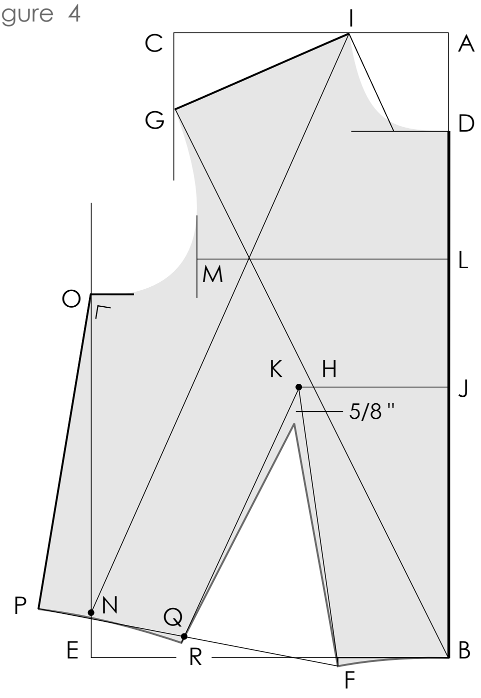


Figure 4



Best Cup Formula: Test Fit

C Cup: N-P = 7/8"

D Cup: N-P = 1-1/2"

D Cup: N-P = 1-3/4"

For additional information, see section on Fitting the Bodice, three pages ahead.

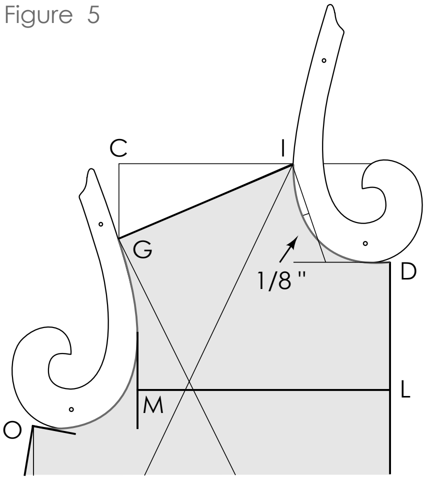
Continue with instruction O-P.

Figure 5

Armhole: Draw armhole curve with rule touching G, M, and square line. Do not follow curve past square line.

Neckline: Draw curve from I to D passing inside the angle line by 1/8".

Figure 5



BACK BODICE DRAFT

Figure 6

- **A to B = Full length (6)** ______.
- **A to C = Across shoulder (14)** ______.
  Square 3 inches down from C.
- **B to D = Center back length (5)** ______.
  Mark and square out 4 inches.
- **B to E = Back arc (18),** plus 3/4 inch ______.
  Square up from E.

Figure 6

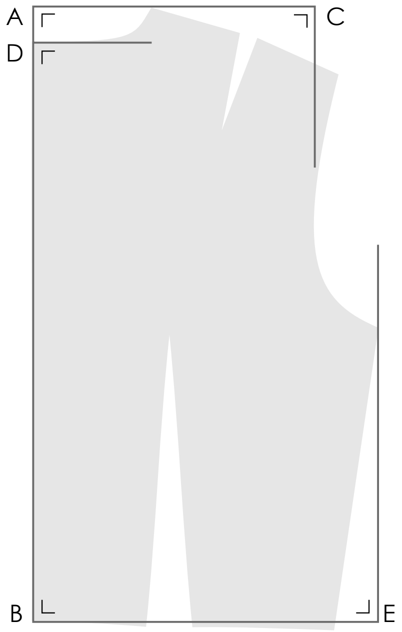


Figure 7

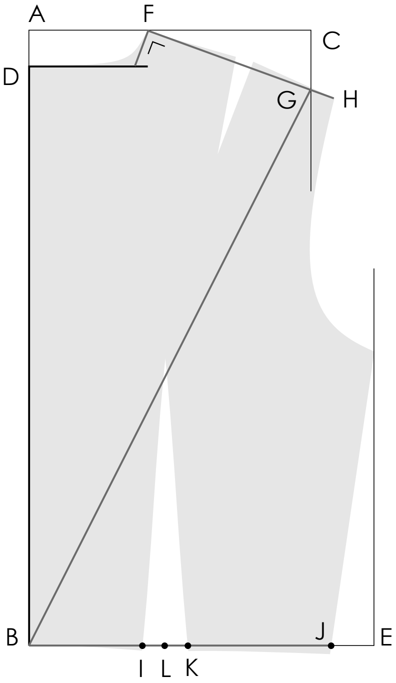


Figure 7

- **A to F = Back neck (12), plus 1/8 inch** ______.
- **B to G = Shoulder slope (7), plus 1/8 inch** ______.
- **F to H = Shoulder length (13), plus 1/2 inch** ______.
  Line may pass G.
  Square down from F to D line.
- **B to I = Dart placement (20)** ______.
- **B to J = Waist arc (19), plus dart intake of 1 1/2" and 1/4" (ease).** (Junior/petite sizes: add 1 inch dart intake, plus 1/4-inch ease.)
- **I to K = Dart intake**.
  Mark center and label L.

Figure 8

- **J to M** = Square down 3/16 inch.
- **M to N = Side length (11) ______.**
- **L to O** = Square up from L 1 inch less than M to N.

  Draw dart legs from O, 1/8 inch past I and K.

  Draw slightly curved lines from K to M and from B to I.

Figure 9

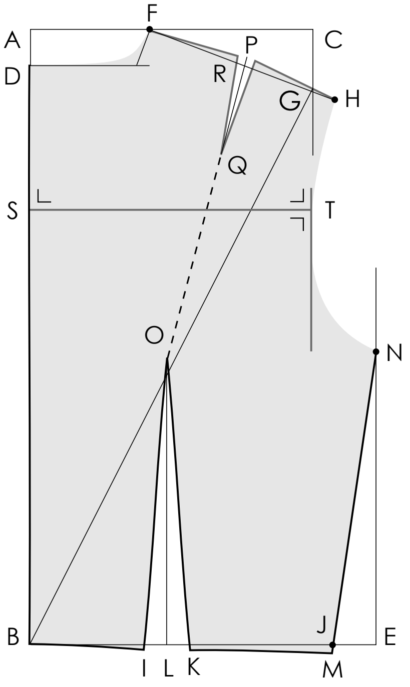


Figure 10

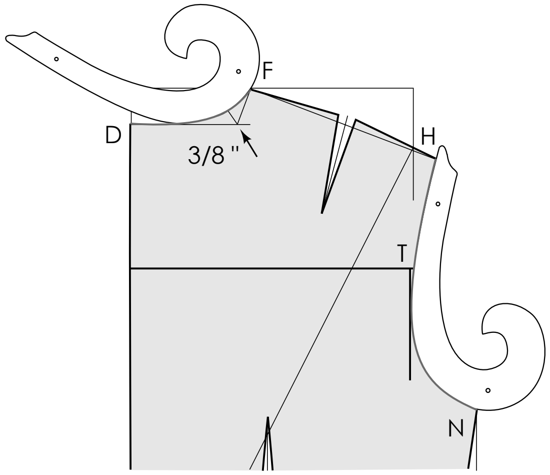


Figure 8

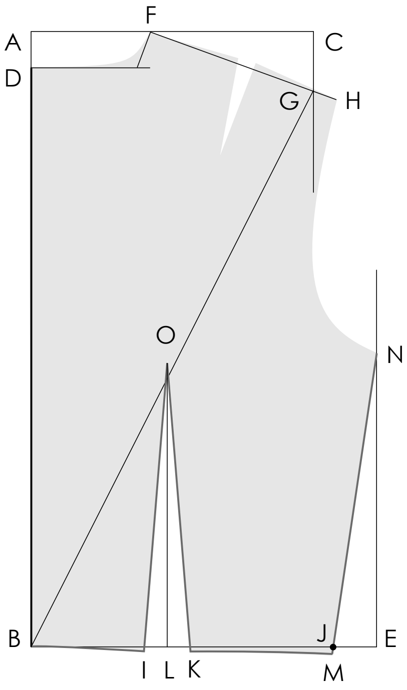


Figure 9

- **F to P** = One-half of F to H. Mark.
- **P to Q** = Draw a 3-inch line in the direction of point O (indicated by broken line).
- **P to R** = 1/4 inch. Mark.

  Draw dart leg from Q 1/8 inch past R and connect to F.

  Mark 1/4 inch from P. Draw other dart leg from Q equal to dart leg Q–R, and connect to H.
- **D to S** = One-fourth of D to B. Mark.
- **S to T = Across back, plus 1/4 inch (16) ______.**

  Square up and down from T, as shown.

Figure 10

- *Armhole:* Draw armhole with the French curve touching H, T, and N. The curve should touch square line.
- *Neckline:* Draw a 3/8-inch angle line from the corner. Draw neckline from F, angle line and ending close to D.

To test fit, add seams to muslin. (See next two pages.)

Increasing and Decreasing Bust

The bodice is drafted with a B cup. The pattern can be adjusted for bust cup sizes A, C, D, and DD for personal fit. Test fit and, if necessary, adjust again; see Figures 4 and 5.

Figure 1

- Draw a line from dart point to bust point and to but not through mid-armhole.

Figure 2
C, D, DD Cup

Spread at bust point as follows:

- C Cup = 3/8 inch.
- D Cup = 3/4 inch.
- DD Cup = 1 inch.
- Center bust point.
- Lengthen dart leg A to be equal to B.

Figure 3
A Cup

- Overlap bust point 3/8 inch. Tape.
- Center bust point.
- Shorten dart leg A to true with B.

FITTING THE BODICE

Cut and sew the bodice. Press without steam. Place on form or model to analyze the fit. Always measure corrected areas and adjust the patterns.

Figure 4
Looseness: Pin excess at bust to zero at shoulder and waist.

Figure 4

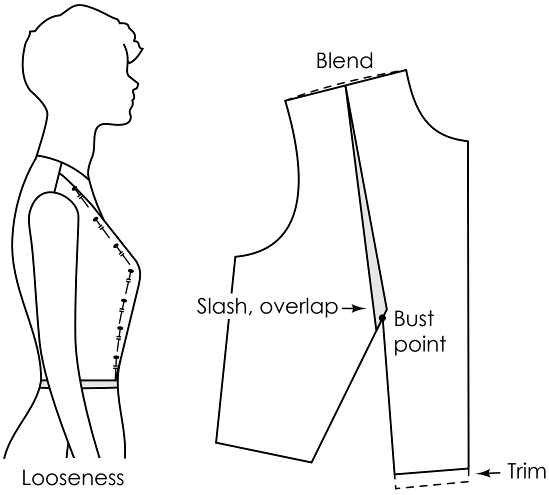

Blend
Slash, overlap
Bust point
Trim
Looseness

Figure 1

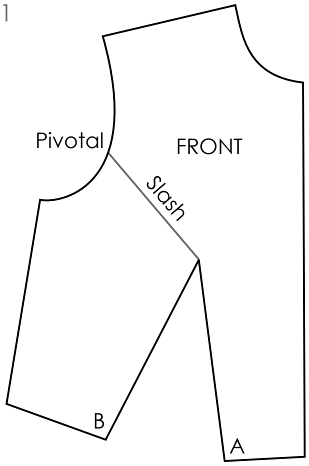

Pivotal
FRONT
Slash
B
A

Figure 2

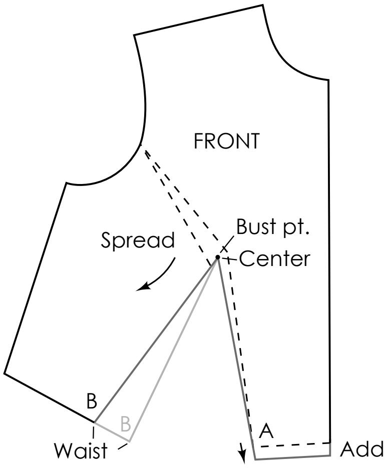

FRONT
Spread
Bust pt.
Center
B
B
Waist
A
Add

Figure 3

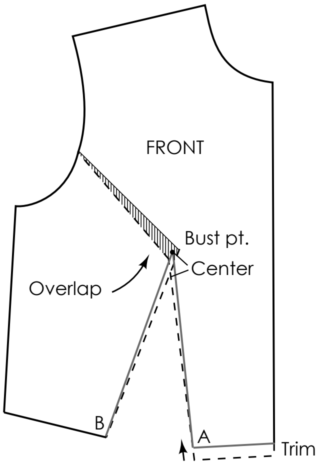
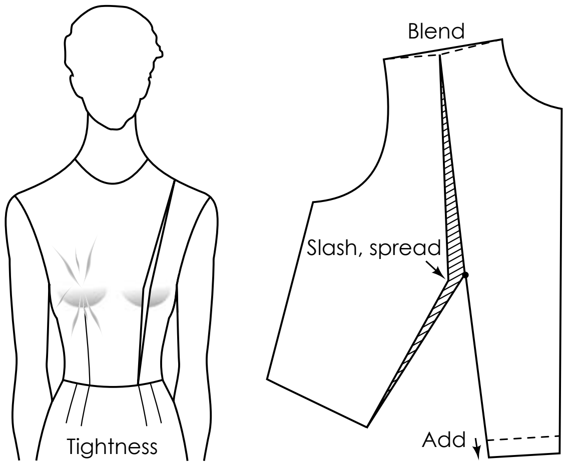

FRONT
Bust pt.
Center
Overlap
B
A
Trim

Figure 5
Tightness: Stress folds radiating from bust. Slash muslin from waist to bust, and spread to give bust sufficient room.

Figure 5


Blend
Slash, spread
Add
Tightness

Pattern Correction for Asymmetrical Models

Model (a) with high/low shoulders.
Model (b) with high/low hips.

Corrections: Unfold the pattern: bodice (c) or skirt (d). Slash from low side to high side. Overlap recorded amount, mend, blend, and test.

Figure 1 a

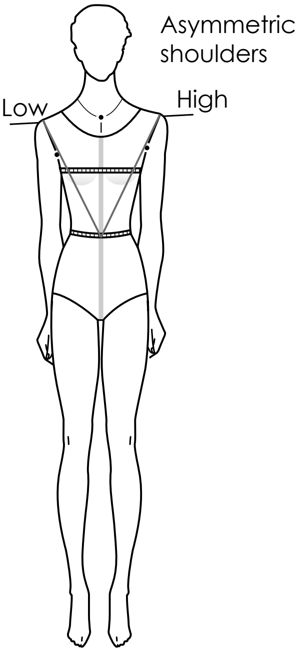

Asymmetric shoulders
Low
High

Figure 1 b

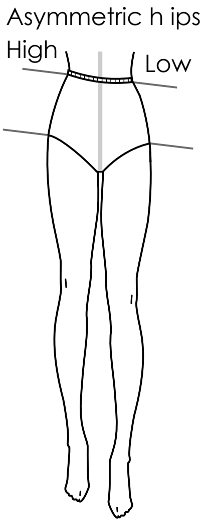

Asymmetric h ips
High
Low

Figure 1c

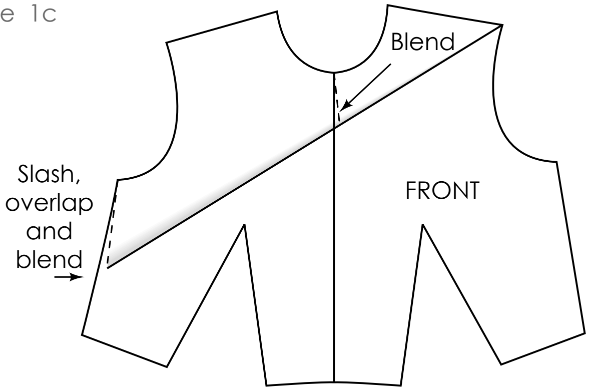
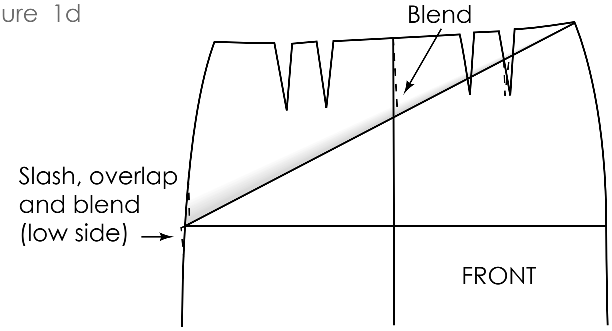

Blend
Slash, overlap and blend
FRONT

Figure 1d


Blend
Slash, overlap and blend (low side)
FRONT

Imperfect Alignment

Figures 2a, b

- Front or back bodice overlaps center line of the form.
- Possible solutions: Lift muslin at shoulder tip, lower dart point, or check waistline measurements and adjust side waist, if required.
- Correct the pattern by trimming the adjusted amount at shoulder tip to zero at neck.

Figures 3a, b

- Front or back swings away from the center line.
- Possible solutions: Add muslin at shoulder tip, check waistline measurements and adjust side waist, if required.
- Correct the pattern by adding the adjusted amount at shoulder tip to zero at neck.

Figure 2 a

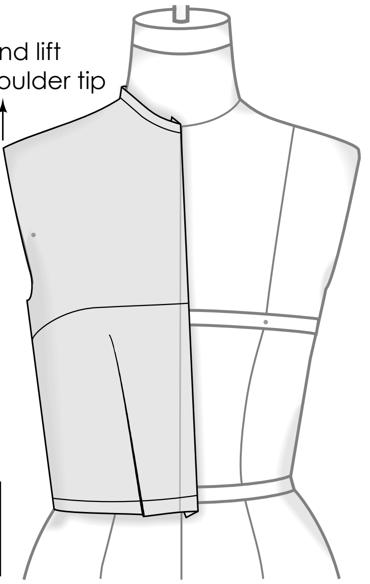

Unpin and lift muslin at shoulder tip

Figure 2 b

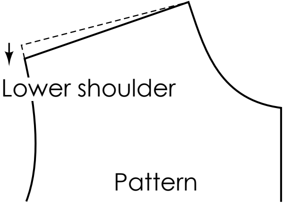

Lower shoulder
Pattern

Figure 3a

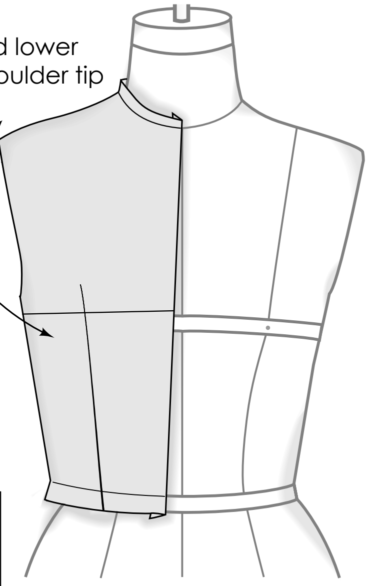
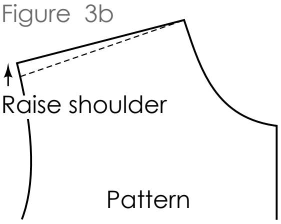

Unpin and lower muslin at shoulder tip
Dart pinned at, or beyond bust point

Figure 3b


Raise shoulder
Pattern

FITTING THE NECKLINE

If the front or back neckline is too loose (more than 1/8 inch) (Figure 4a), open the shoulder and smooth the fabric to fit. Mark the muslin and adjust the length of the shoulder. If stress appears at the shoulder/neck (Figure 4b), open the shoulder. Fit the muslin to the neckline (allow 1/8-inch ease). Mark the neckline and adjust the shoulder length, if necessary.

Figure 4 a

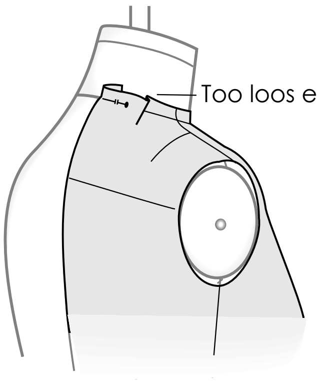
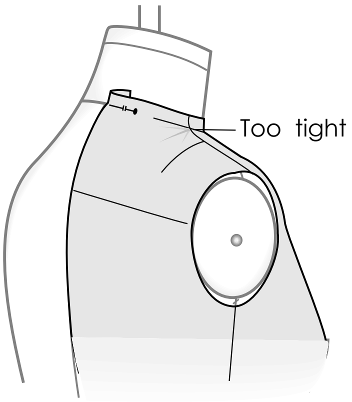


Figure 4b



FITTING THE ARMHOLE

A well-balanced sleeve depends on the accurate shape of the armhole and the correct placement of the shoulder and side seams of the form.

A well-shaped armhole fits smoothly over the shoulder and falls away evenly from the lower part of the armhole plate, and the side seam is aligned with that of the form. There is no appearance of stress lines or gapping. See Figure 5a.

If the armhole of the bodice is identified with one of the examples, follow the suggested adjustment and make corrections to the pattern.

Figure 5a

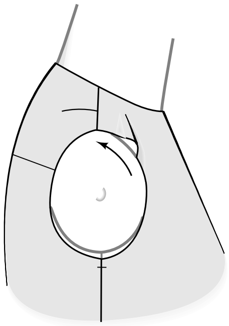
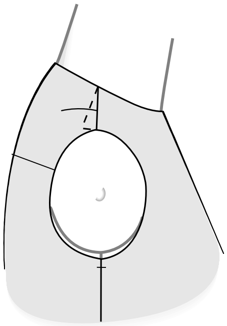


Figure 5b



Gap Above Front Mid-Armhole:

Figures 5a, b

- The fit problem is shown in Figure 5a.
- Release shoulder seam and smooth excess over the shoulder. Pin and mark adjusted shoulder (Figure 5b).

Gap Above Back Mid-Armhole:

Figures 6a, b

- The fit problem is shown in Figure 6a.
- Release shoulder seam and smooth excess over the shoulder. Pin and mark adjusted shoulder (Figure 6b).

Figure 6a

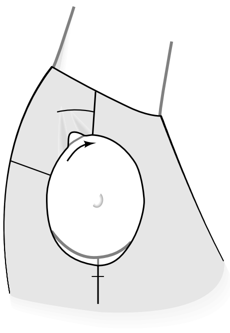
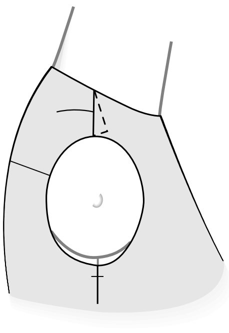


Figure 6b



Gap Below Front Mid-Armhole:

(Gaping is caused by unbalanced side seams.)

Figures 7a, b, c
- The fit problem is shown in Figure 7a.
- Pin the excess, allowing 1/4-inch ease (Figure 7b).
- Slash the pattern from mid-armhole to bust point and from dart point to bust point. Overlap the pattern equal to the amount pinned at the armhole. Tape to secure (Figure 7c).

Figures 8a, b
- If the armhole is too tight at the front armhole (Figure 8a), slash and spread 1/4 inch (Figure 8b).

Figure 7a

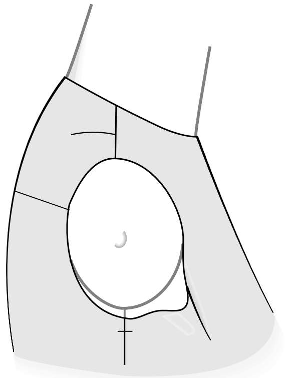


Figure 7b

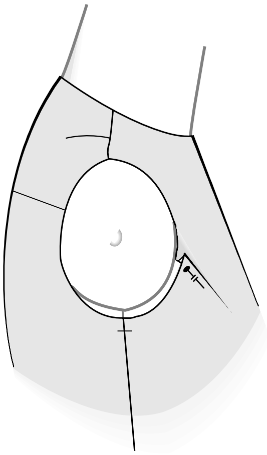


Figure 7 c

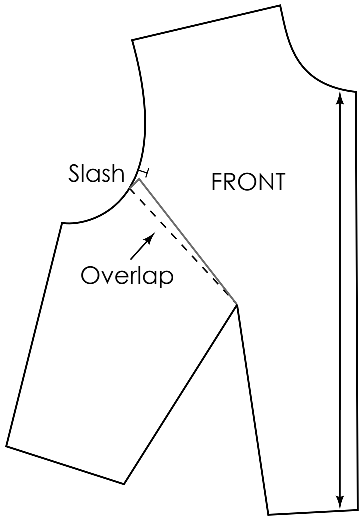


Figure 8a

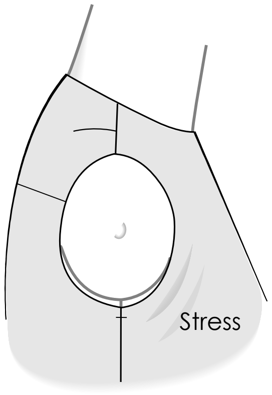
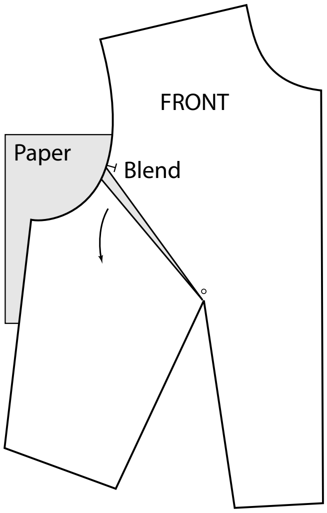


Figure 8b



Gap Below Back Mid-Armhole:

(Gaping is caused by unbalanced side seams.)

Figures 9a, b
- The fit problem is shown in Figure 9a.
- Release side seam and smooth excess downward. Mark side seam and be sure that 3/4-inch ease is included. Mark waistline.
- Measure the distance between the armhole pin head and corrected muslin for pattern correcting (Figure 9b).

Figure 9a

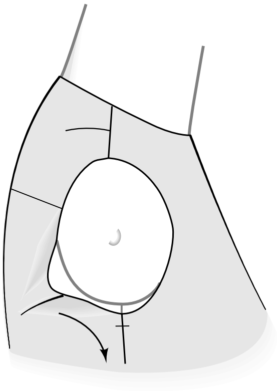
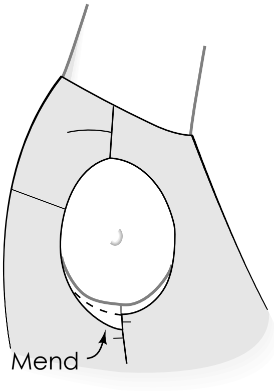


Figure 9b



SKIRT DRAFT

The basic skirt foundation has several uses: as a base for manipulation to create design patterns, combined with the bodice as a dress, as a skirt to complete a suit, and as a separate basic skirt. Two versions of the back skirt are given. In Type 1, the back darts are of equal intake and length. Type 2 has two darts of unequal intake and length.

Record measurements from the Model Measurement Chart in the spaces provided.

Personal fit: Use the Personal Dart Intake Chart to determine the number of darts and dart intake for the skirt draft. Subtract the waist (2) from the hip measurement (4). Find the difference to the nearest whole number in column 1.

For models having a sway back, mark one dart in front, with all remaining excess taken up by the back dart(s).

Personal Dart Intake Chart

Column 1:

4-inch Difference
Front: 1 dart—1/2″ intake. Back: 1 dart—3/4″ intake.
5-inch Difference
Front: 1 dart—1/2″ intake. Back: 1 dart—1″ intake.
6-inch Difference
Front: 1 dart—1/2″ intake. Back: 2 darts—5/8″ intake.
7-inch Difference
Front: 1 dart—1/2″ intake. Back: 2 darts—3/4″ intake.
8- or 9-inch Difference
Front: 2 darts—3/8″ intake. Back: 2 darts—7/8″ intake.
10-inch Difference
Front: 2 darts—1/2″ intake. Back: 2 darts—1″ intake.
11-inch Difference
Front: 2 darts—5/8″ intake. Back: 2 darts—1 1/8″ intake.
12-inch Difference
Front: 2 darts—5/8″ intake. Back: 2 darts—1 1/4″ intake.
13- or 14-inch Difference
Front: 2 darts—5/8″ intake. Back: 2 darts—1 3/8″ intake.

(Allow 3/8″ ease at each quarter waist. For 3 darts at the back skirt, divide 2 3/4″ into thirds.)

Skirt Front and Back

Figure 1

- **A to B = Skirt length** (as desired).
- **A to C = Center front hip depth (25)** ______.
- **A to D = Back hip arc (23),** plus 1/2 inch (ease) ______.

  Squared out from A, C, and B equal to A to D.

  Draw center back line F to D. Label E and F.
- **E to G = Center back hip depth (25)** ______.

  Crossmark location.
- **A to H = Front hip arc (23),** plus 1/2 inch (ease) ______.

  Squared out from A, C, and B equal to A to H.
- Draw center front line J to H. Label J and I.

Figure 1

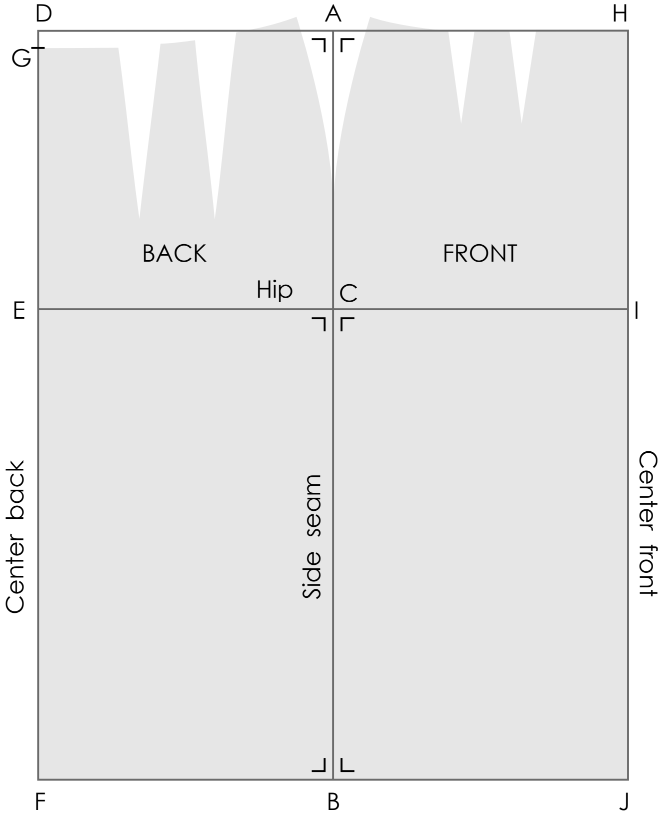


Figure 2
Back:

- **D to K = Back waist arc (19),** plus 1/4 inch (ease), and add 2 inches for dart intake ______.

  Personal fit; use dart intake from dart chart.
- **D to L = Dart placement (20)** ______.

  Mark first dart 1 inch from L.

  Mark dart space 1 1/4 inches and mark 1 inch for second dart.

  Square up and down from K.

Front:

- **H to M = Front waist arc (19),** plus 1/4 inch (ease), and add 1 inch for dart intake ______.

  Personal fit; use dart intake from dart chart.
- **H to N = Dart placement (20)** ______.

  Mark first dart 5/8 inch from N.

  Mark dart space 1 1/4 inches and mark 5/8 inch for second dart.

  Square up and down from M.

Figure 2

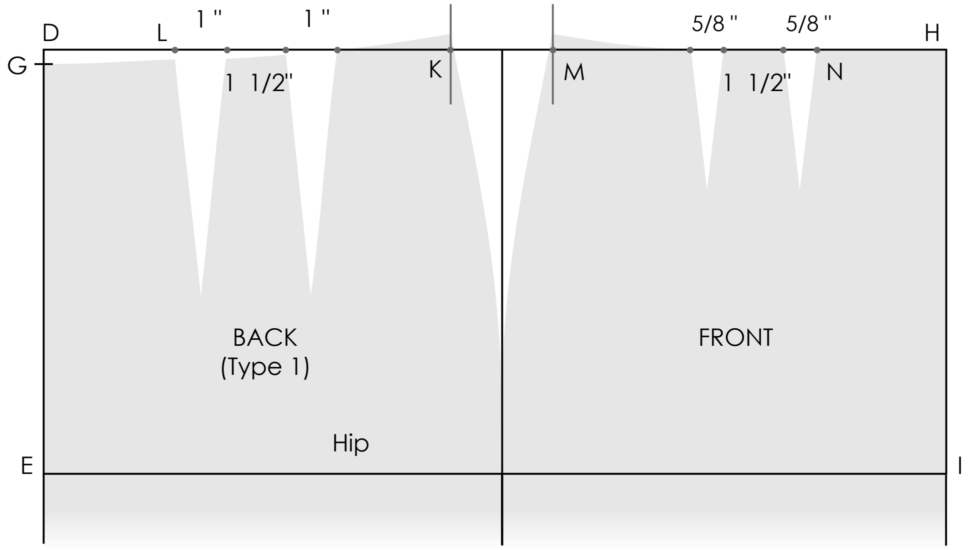


Figure 3

- **C to P = Side hip depth (26)** ______.

  Draw side seam curve using the skirt curve rule. Shift the rule until the depth measurement touches the front and back guidelines. Label P and Q.

Waistline: Draw front and back waistline using the shallow end of the curve ruler from G to P (back) and from H to Q (front).

Figure 3

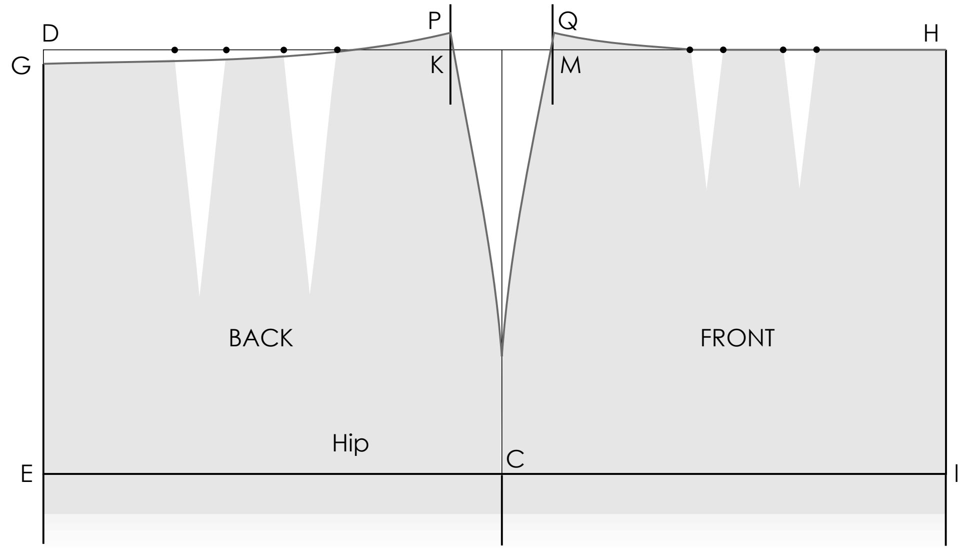


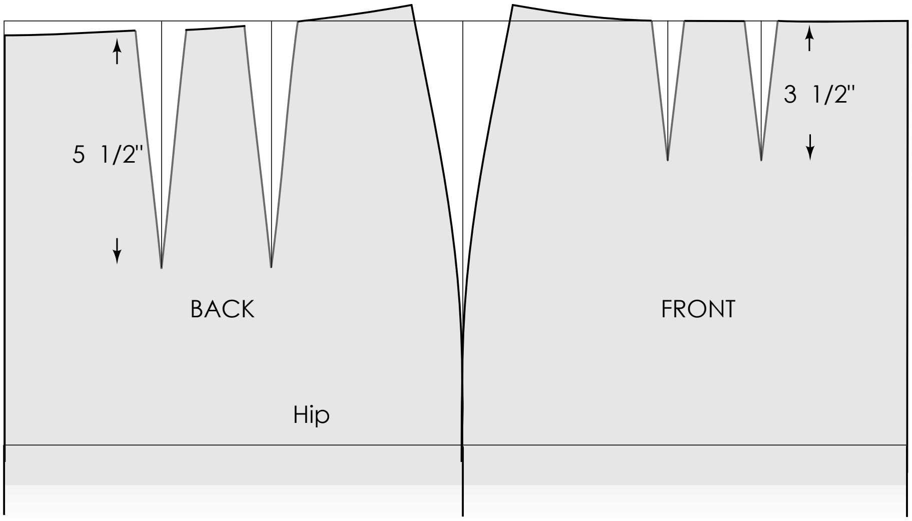
Figure 4

- Back darts: Locate centers of each dart intake, and square down 5 1/2 inches (5 inches for juniors and petites).

  Draw dart legs from dart points to curve line of the waist.

  True dart legs by adding to the shorter legs and blend to the curve of the waistline.
- Front darts: Repeat the process with the dart legs 3 1/2 inches long.

Figure 4



Skirt Back (for Suits and Separates)

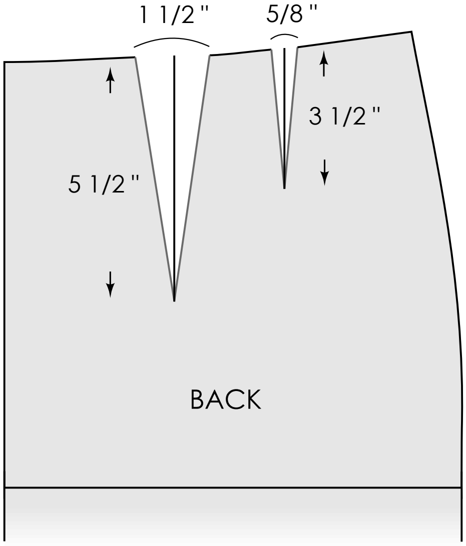
Trace the skirt back. Mark the corner of the dart leg closest to center back. Do not include the dart intake (Figure 5).

Adjust Dart Intake.

- Mark first dart intake 1 1/2 inches. Mark dart space 1 1/4 inches. Mark second dart intake 1/2 inch. Mark dart centers. Use this measurement from center back to mark dart points when drawing dart legs to length as illustrated. True dart legs by adding to the shorter leg.
- Blend to the curve of the waistline.
- Complete the pattern and cut in fabric for a test fit given on the following two pages.

Personal fit; adjust using your measurements.

Figure 5



Fitting the Skirt

Sew the skirt with a long stitch. Press without steam and place on the form. The skirt may be critiqued separately as illustrated or stitched to the bodice.

The following check points are guides in analyzing the fit of a skirt. The waistlines of the bodice and skirt must match and the darts that are closest to the center of the garment should align with the princess line. If not, check measurements and make corrections. Darts that appear with stress lines require that the darts be shortened. Darts ending with more than slight fullness require that the darts be stitched to a longer length. Adjust side seams if the skirt is too tight or too loose. The hemline of a balanced skirt is parallel with the floor. If not, follow the examples below for suggestions in correcting the skirt and patterns.

A Well-Balanced Skirt

Figures 1a, b

- The skirt aligns with the center lines of the form and hangs straight from the hip to the hemline, indicating that the HBL line (crossgrain) is parallel with the floor (Figure 1a). The skirt stitched to the bodice is shown in Figure 1b.

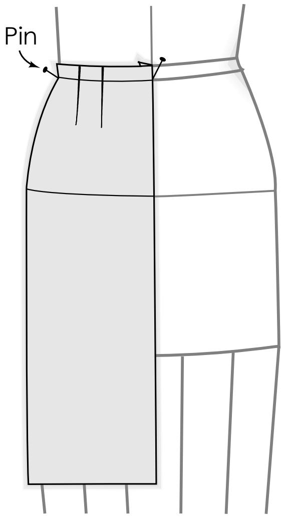


Figure 1a

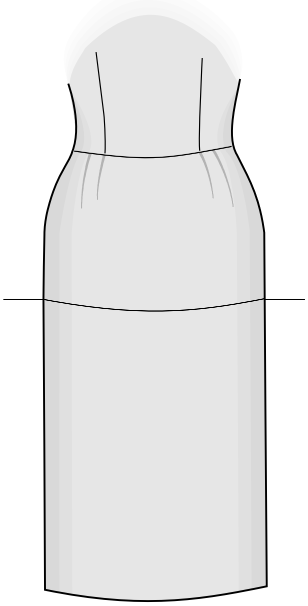


Figure 1b

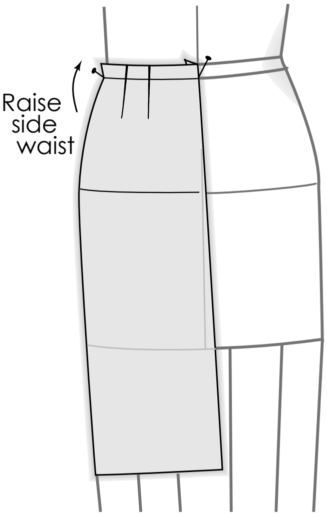


Figure 2 a

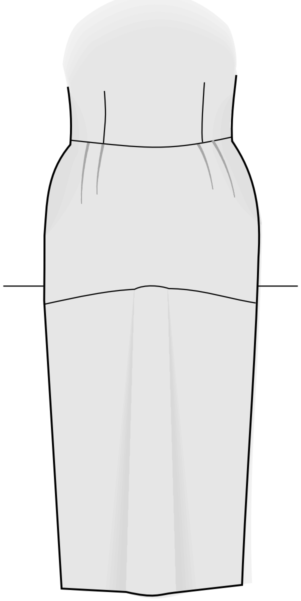


Figure 2 b

Imbalanced Skirt

Figures 2a, b

- Problem: The skirt overlaps the center line (Figure 2a). A flare will appear at the center of the skirt (Figure 2b).
- Possible causes: Insufficient dart intake or side waist incorrectly marked. Check the location of the HBL on the form and the skirt draft.
- Suggested solution: Raise the side waist until the skirt aligns with the center line of the form. It may be necessary to release the side seams to correct the problem. Increase dart intake, if necessary.

Figures 3a, b

- The skirt swings away from the center (Figure 3a).
- The skirt will press against the thigh and move up the hipline when the wearer is walking (Figure 3b).
- Problem: Excessive dart intake or the side waist incorrectly marked. Check the location of the HBL on the form and the draft.
- Suggested solution: Lower the side waist until the skirt aligns with the center line of the form. It may be necessary to release the side seams to correct the problem. Decrease the dart intake, if necessary.

Figure 3a

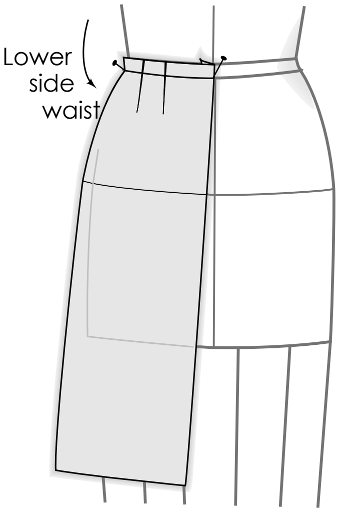
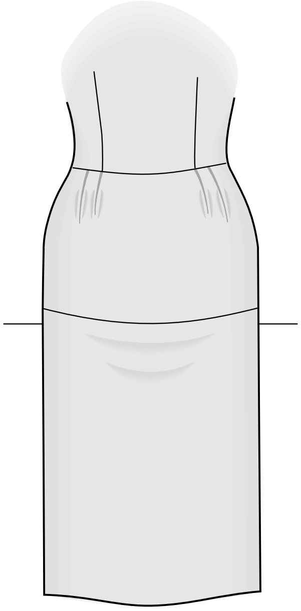


Figure 3b



SELF-EVALUATION TRUE AND FALSE TEST

Circle true or false. The answers are at the end of the chapter.

1. Darts control the fit of the basic garment. T F
2. Dart legs confine unneeded excess. T F
3. A dart is the same as adding fullness. T F
4. Bodice darts do not radiate from the bust. T F
5. Gapping results from misplaced excess. T F
6. A standard missy form has a C-bust cup. T F
7. The HBL is parallel with the waist. T F
8. The center back waist is lower than the center front waist. T F
9. Back darts are always the same length. T F
10. Some ease is in the front armhole. T F
11. Gapping is trimmed at the seams. T F
12. Darts take up excess caused by convex shapes. T F
13. There are 12 major darts on the total basic bodice and skirt. T F
14. It is not neccessary to recheck measurements taken from the form or model. T F
15. The armhole measurement can determine the biceps. T F
16. The armhole measurement can determine the cap height. T F
17. Measurements taken from a chart guarantee a perfect fit. T F
18. The shoulder and side seam of the form guarantees a perfect sleeve alignment. T F
19. The center cap notch stays at the grain line. T F
20. The front sleeve is identified by two notches. T F

PREPARING PATTERNS FOR TEST FIT

Matching Joining Seams

Place patterns with darts on top of patterns without darts at joining seams. Seams that do not match (check measurement chart) are adjusted equally at each end and blended with seamline.

Trueing Front and Back Bodice at Stitch Line

Figure 1

- Place back pattern on top of front pattern (shaded area), touching shoulder/neck corners and mark dart location on front shoulder.

Figure 1

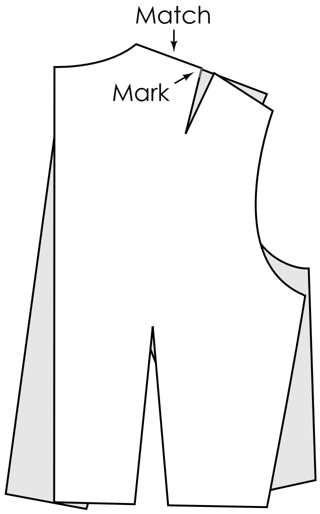


Figure 2

- Move back pattern so that other dart leg touches mark on front shoulder and pattern's edge, matching to shoulder tip. Adjust shoulder, if necessary.

Figure 2

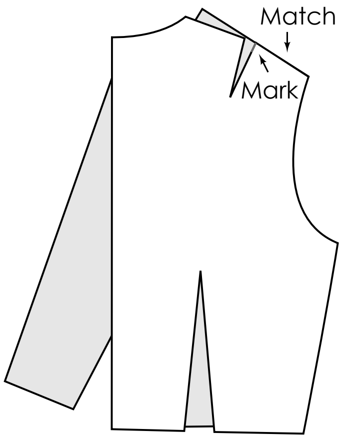
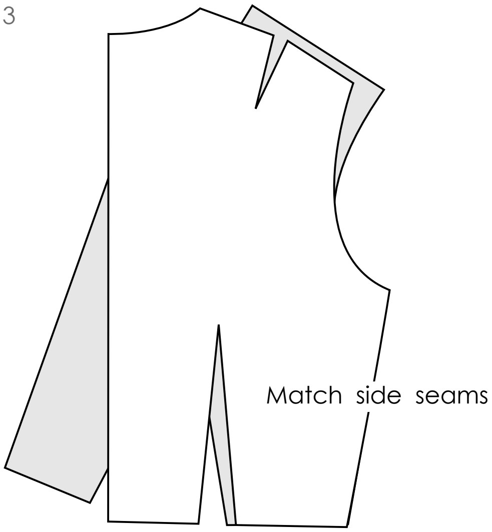


Figure 3

- Place side seams together, matching side at armhole and waist. Adjust side seam, if necessary.

Figure 3

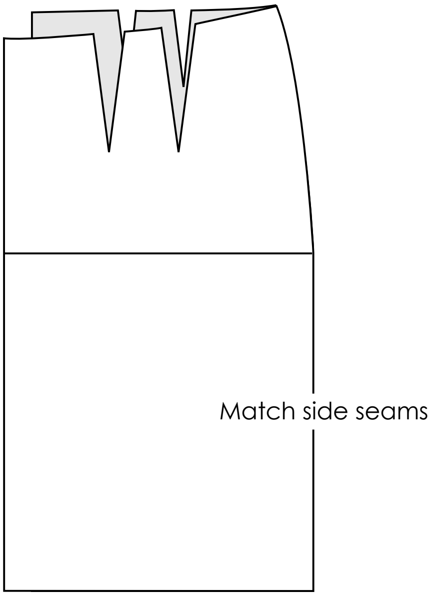


Trueing Front and Back Skirt

Figure 4

- Place back and front (shaded area) skirts together at sides. Match HBL lines. Skirt should match to side waist and hem from the HBL. If it does not, recheck muslin or recheck square line on draft. If correct, adjust patterns above and below the HBL to true.

Figure 4



Trueing Bodice with Skirt

Figure 5

- Place center back of bodice to center back of skirt (shaded area), matching stitchline to dart leg. Adjust dart, if needed.

Figure 6

- Shift back pattern along waistline, matching mark of bodice with other dart leg on skirt. Side seams should match. If they do not, recheck waistline measurements and adjust.

Figure 5

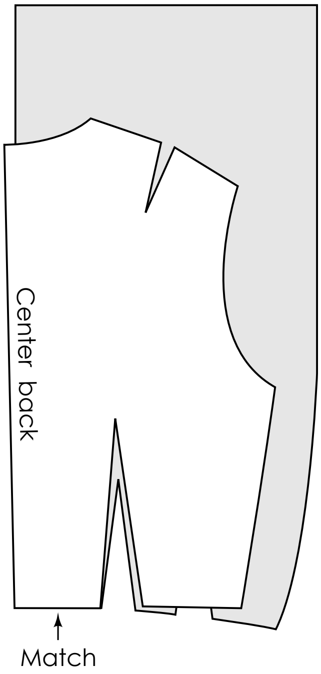


Figure 6

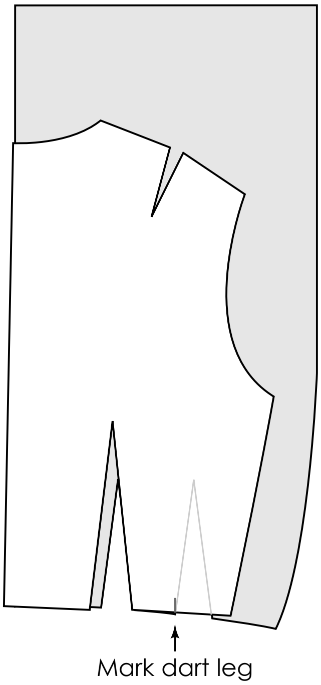
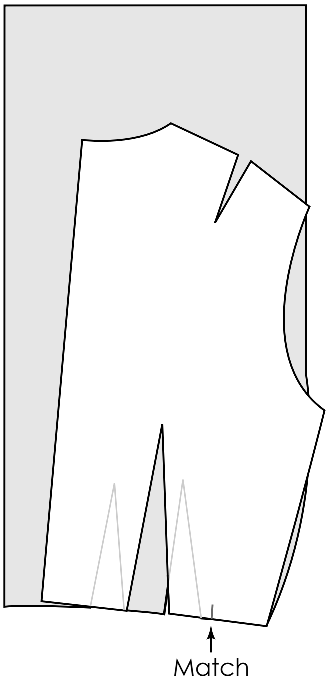


Figure 7

- Shift back pattern, matching other dart leg to dart leg of skirt. Broken line is skirt dart underneath. Mark location of dart leg on bodice.
- Repeat for front bodice and skirt (not illustrated).

Figure 7

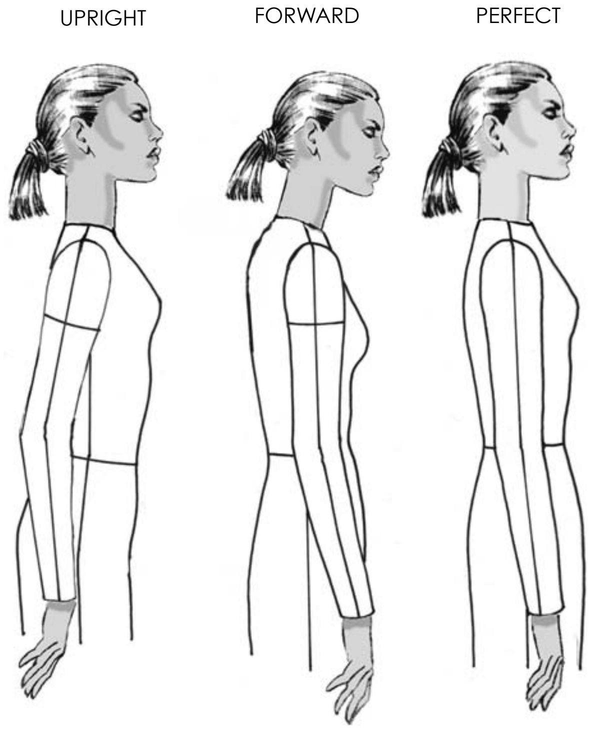


THE BASIC SLEEVE

The basic sleeve is a mounted sleeve stitched to the basic bodice armhole.

A sleeve is to fit an arm, which is one of the most efficient and mobile parts of the human anatomy. The arm functions primarily in a forward motion but is capable of moving in every direction. This flexibility should be considered when testing the fit and comfort of the sleeve.

The center grain of a well-fitted sleeve should align with or be slightly forward of the side seam of models having a perfect stance. The arms of models with stooped shoulders tend to hang too far forward from the side seams. The arms of models with an upright stance tend to hang too far to the back from the side seams. In either case, the sleeve should align with the position of the relaxed arm without regard to alignment with the side seam.



Sleeve Terminology

Communicating in terms that are familiar with those in design and production will help to avoid misunderstanding when problem solving.

Grainline. Straight grain of the sleeve, which is the center of the sleeve from top of cap to wrist level.

Biceps level. Widest part of the sleeve dividing cap from the lower sleeve.

Sleeve cap. Curved top of the sleeve above biceps line.

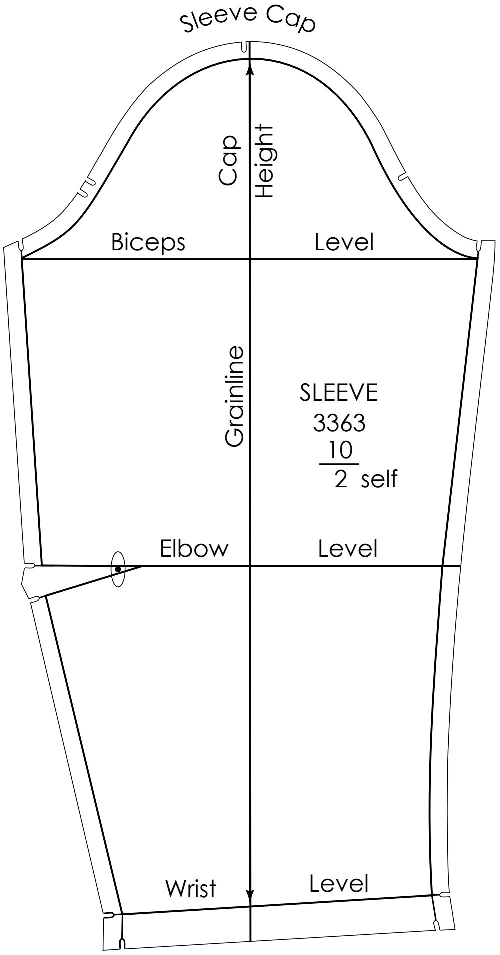
Cap height. Distance from biceps to the top at the grainline.

Elbow level. Placed at the articulation point of the arm, and the location of the elbow dart.

Wrist level. Entry for the hand.

Notches. A notch at the top of the sleeve cap divides cap ease between front and back sleeve and armhole of the bodice. One notch identifies the front sleeve, and two notches identify the back sleeve. Ease begins and ends at the front and back notches.

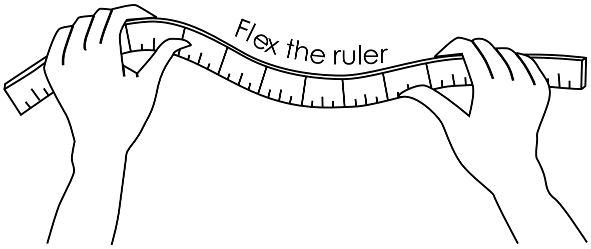
Cap ease. Ranging from 1 1/4 inches to 1 1/2 inches (depending on size) between front and back notches.



SLEEVE CAP EASE

Cap ease of the basic sleeve cap is approximately 1 1/4 to 1 1/2 inches for sizes 10 and above, and 1 1/8 to 1 1/4 inches for sizes below 10. The Sleeve Measurement Chart provides measurements for the sleeve draft but does not necessarily guarantee the correct amount of cap ease because of differences in forms and personal fit models. To help control cap ease and to avoid puckering, follow the "Armhole Measurements" formula (Figures 1a, b, and c). Other sleeve fitting problems that may develop can be resolved by referring to the armhole adjustment sections later in this chapter.

Figure 1 a



Armhole Measurement

Figures 1a, b, and c

To measure the front and back armholes, use a thin, flexible plastic rule held upright when measuring. (Do not use a measure tape.)

Record measurements in spaces on the front and back armholes of the pattern for future reference.

- Measure front bodice armhole. Record _____.
- Measure back bodice armhole. Record _____.
- Add Measurements together. Record _____.
- Divide in half, add 1/4 inch. Record _____.

  Record this measurements for your model size in the space provided on the Sleeve Messurement Chart titled "Armhole measurement."

  In the sleeve draft, it is the A to E instructions.

Figure 1b

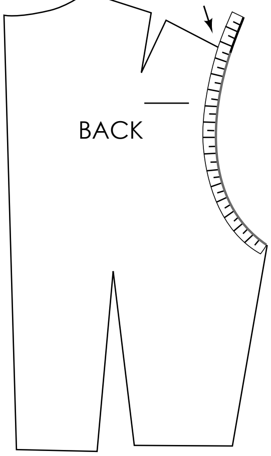
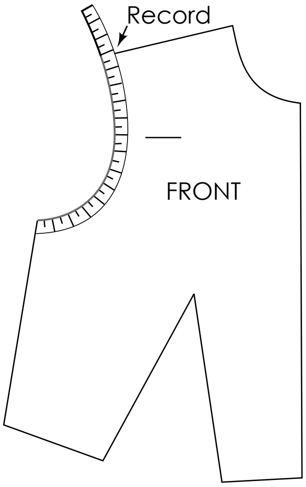


Figure 1c



SLEEVE MEASUREMENT CHART

Grade:	**1″**	**1″**		**$1\frac{1}{2}$″**	**$1\frac{1}{2}$″**	**$1\frac{1}{2}$″**	**2″**
	6	8	10	12	14	16	18
Sleeve length	$21\frac{1}{2}$	$21\frac{3}{4}$	22	$22\frac{1}{4}$	$22\frac{1}{2}$	$22\frac{3}{4}$	23
Cap height	$5\frac{1}{2}$	$5\frac{5}{8}$	$5\frac{3}{4}$	$5\frac{7}{8}$	6	$6\frac{1}{8}$	$6\frac{1}{4}$
Armhole measurement	—	—	—	—	—	—	—
Biceps	$12\frac{1}{4}$	$12\frac{5}{8}$	13	$13\frac{1}{2}$	14	$14\frac{1}{2}$	$15\frac{1}{8}$

SLEEVE DRAFT

Figure 2
Draw a line on paper. Mark and label:

A to B = Sleeve length _____.

A to C = Cap height. Mark _____.

C to D = One-half of C to B.

D to D′ = 3/4 inch. Mark. Square lines from A, C, D′, B.

Armhole measurement = _____. Place a ruler at A and pivot until the measurement touches biceps line. Mark.

C to E = One-half of biceps measurement. Mark. Compare placement of the two marks, and mark biceps in between. Label E. Draw a line from A to E; divide into fourths. Mark and label, as shown.

C to F = C to E

Draw a line from A to F. Divide into fourths, mark and label, as shown.

B to O = 2 inches less than C to E.

B to P = B to O

Draw a line from O to E and from P to F.

Figure 2

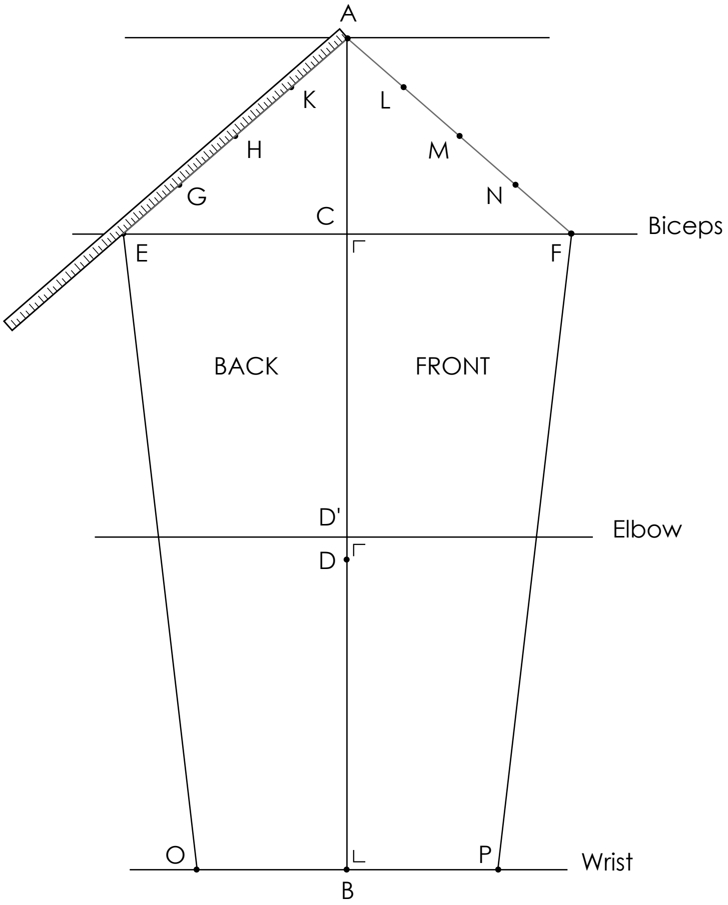
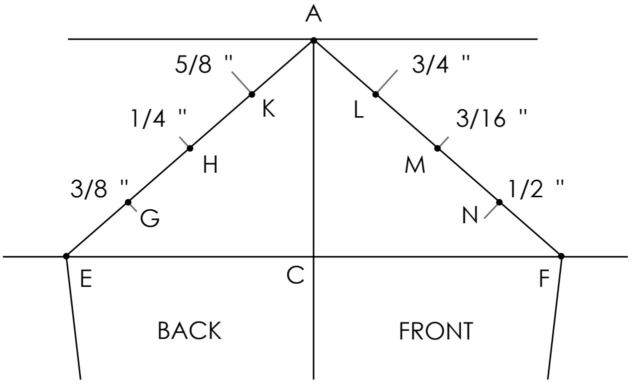

A
K
L
H
M
G
N
C
Biceps
E
F
BACK
FRONT
D'
Elbow
D
O
P
Wrist
B

Figure 3
Square lines from the following:

- G—in 3/8 inch
- H—out 1/4 inch
- K—out 5/8 inch
- L—out 3/4 inch
- M—out 3/16 inch
- N—in 1/2 inch

Figure 3


A
5/8 "
3/4 "
K
L
1/4 "
3/16 "
H
M
3/8 "
1/2 "
G
N
E
C
F
BACK
FRONT

Figures 4a, b

Front Capline:

- Use the French curve to shape the capline by touching A, L, and M. Draw the curve past M for blending.
- Change the position of the curve rule touching F, and N, and draw curve blending with M line (Figure 4a). Draw the curve.

Back Capline:

- Place the curve rule so that A, K, and H touch. Draw the curve past H to blend (Figure 4b).
- Change the position of the curve rule touching E and G, and draw curve blending with H line.

Figure 4a

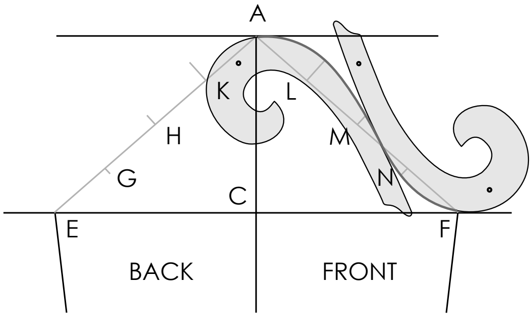


Figure 4b

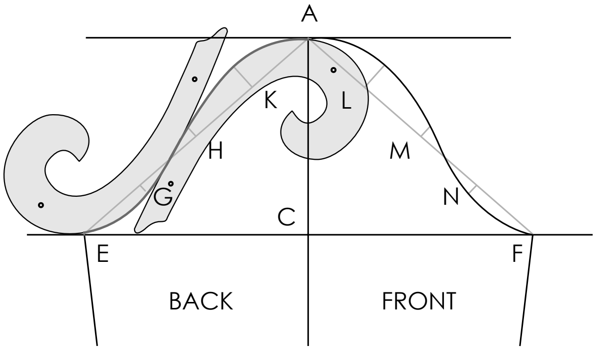


Figure 5

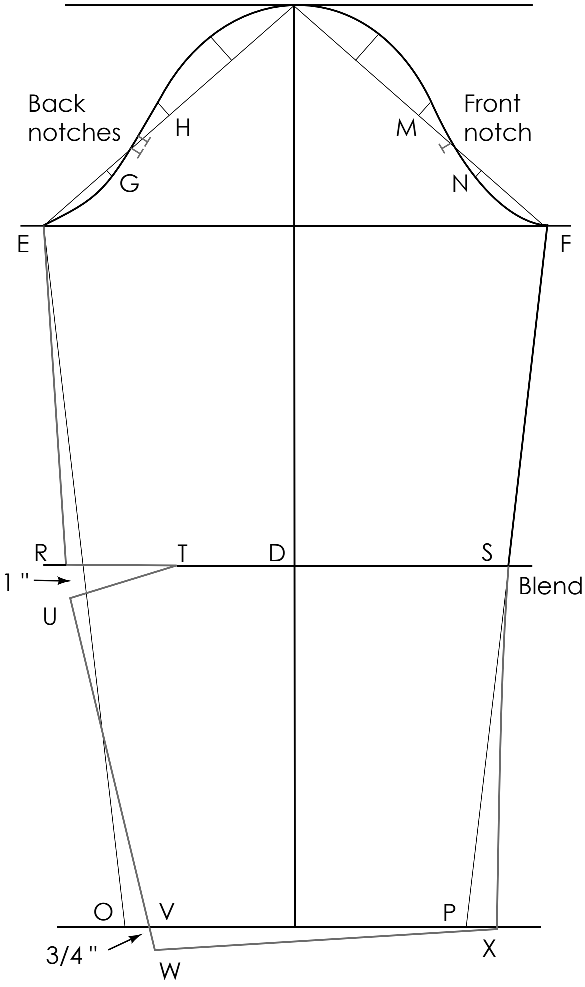


Figure 5

Completing the Sleeve:

- Label elbow Level S, and extend line R 1/4 inch. Draw a line from R to E.
- Elbow dart:

  R to T = One-half of R to D. Mark.

  R to U = 1 inch. Mark.

  T to U = R to T. Draw connecting line.

  O to V = 3/4 inch. Mark.

  Draw a line from U through V equal to S to P. Label W.

  W to X = O to P. (Adjust at the fitting if necessary.)

Draw a line ending at wrist level. Draw a slightly curved line from X to S to F.

Ease Control Notches

Back—Mark notch 1/2 inch up from G and the second notch 1/2 inch above it.
Front—Mark one notch 1/2 inch above N.
Continue with instructions to determine cap ease.

ADJUSTING SLEEVE TO ARMHOLE OF BODICE

The basic sleeve should measure approximately 2 inches more across the biceps of the pattern than the circumference of the arm. The basic sleeve cap should measure an average of 1 1/4 to 1 1/2 inches more than the front and back bodice armhole. The difference between the sleeve cap and armhole measurement is the amount of ease needed to fit over the ball of the arm. The amount of cap ease is determined by the width of the biceps, the cap height, and the circumference of the front and back armhole of the bodice. If any one of the factors is out of harmony, it will affect the fit and appearance of the sleeve in the following ways: excessive or insufficient cap ease, cap ease unequally distributed between the front and back armhole, and sleeves being too tight or too loose. Incorrect placement of the shoulder or side seams of the form will affect the alignment of the sleeve. It is advisable to correct these problems before attaching the sleeve to the garment to minimize fitting problems later.

Determining Cap Ease

Two methods are given to determine cap ease. The sleeve can be walked around the front and back armhole, or the measurement can be taken by using the plastic rule. Both are illustrated.

Method 1: Walking the Sleeve

Figures 1a, b, and c

- Place the corner of the front sleeve at biceps to the corner of the bodice.

Figure 1 a

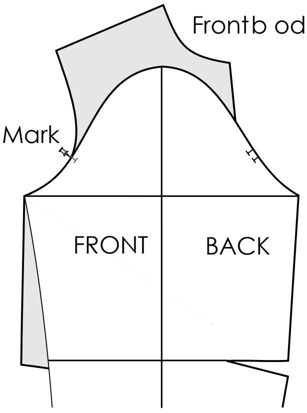


Figure 1b

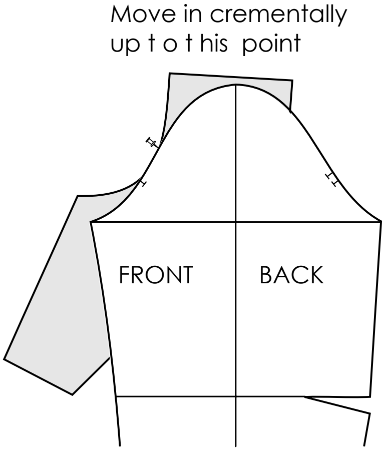
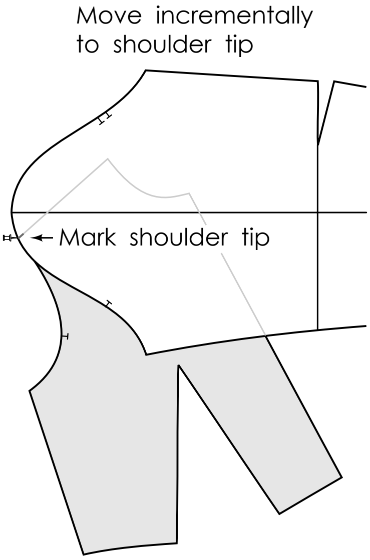
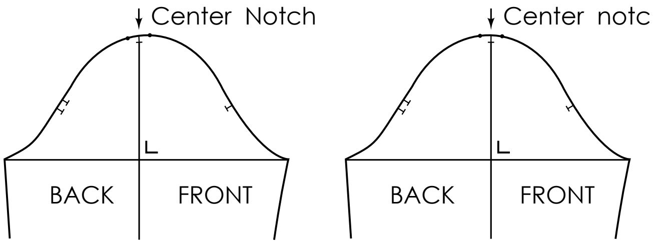


Figure 1c





- Use two pushpins alternately to pivot and advance the sleeve cap around the curve line of the armhole.
- Mark the notch location of the sleeve to the armhole of the bodice.
- When the sleeve cap reaches the shoulder tip of the bodice, mark the location on the sleeve cap.
- Repeat the process for the back sleeve.

Cap Ease

- If the cap ease is correct, center a notch between the marks to equalize the ease. Then continue on to the Setting the Sleeve into the Armhole section.
- If cap ease is more or less than required, see section on suggested adjustments of the sleeve or the armhole later in this chapter. When adjustments have been completed, continue on to the Setting the Sleeve into the Armhole section.

Method 2: Flex Rule Measurement

Figures 1a, b, and c

Use a very thin flexible plastic ruler held upright with both hands as the rule is manipulated around the curves of the armholes. Measure and record (if not already recorded). Using back armhole measurement, measure the back side of the sleeve cap and mark where the back armhole measurement ended.

Repeat the process for the front armhole and mark the front sleeve cap.

Figure 1 a

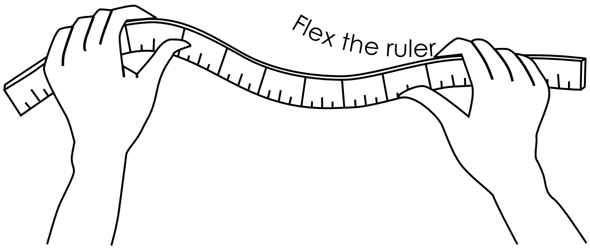

Flex the ruler

Figure 1 b

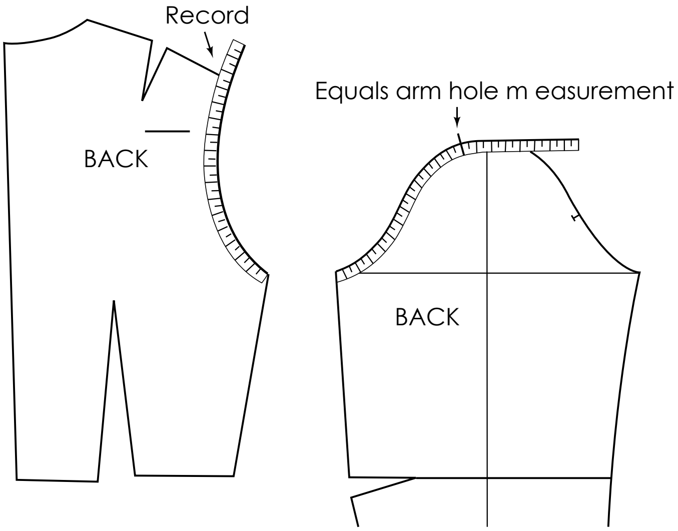
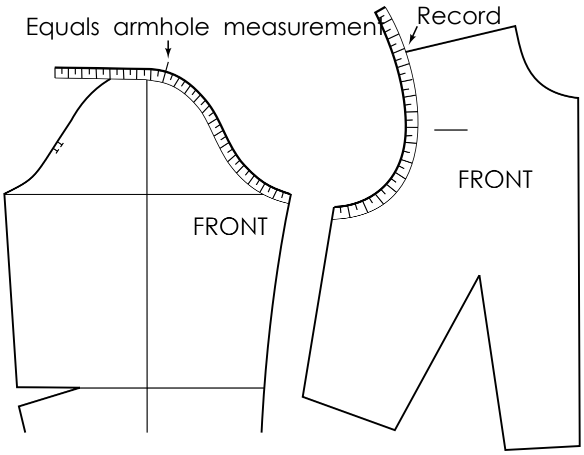

Record
BACK
Equals arm hole m easurement
BACK

Figure 1c


Equals armhole measurement
Record
FRONT
FRONT

Cap Ease

Figures 1d and e

Measure the distance between the marks.

- If the amount of cap ease is sufficient, center a notch between the marks to equalize the excess. The center notch may be moved to equalize the ease. Continue to the next step, Setting the Sleeve into the Armhole section, to cut, stitch, and balance the sleeve.
- If the cap ease is less or more than needed, see the following pages for suggested adjustments of the sleeve or the armhole. When all adjustments have been completed, go to the Setting the Sleeve into the Armhole section to cut and stitch the sleeve.

Figure 1d

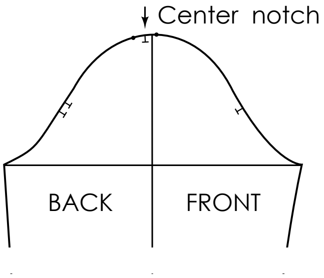
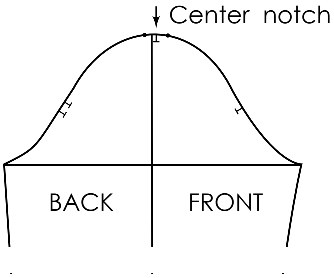

Center notch
BACK
FRONT

Figure 1e


Center notch
BACK
FRONT

Adjusting the Armhole to Accommodate Cap Ease

Even though the cap ease is the correct amount or a little more than required, the ease around the cap may show puckers (small gathers). The reason may be the weight of the fabric, or lack of control of the machine as the fullness is stitched around the curve of the armhole. Three examples showing how to control the cap excess are given.

Figure 1 should be tried first. If the problem is not resolved, combine with Figure 2 and finally Figure 3. The cap ease for example problem is 1 3/4 inches.

Figures 1a, b, and c

Lower front and back armhole notches (do not lower sleeve notches):

- Lower the front and back bodice notches 1/8 inch to 1/4 inch.

  1/8 to 1/4 inch of sleeve ease is held and stitched below the notches, leaving remaining cap ease above the lowered notches.

Figure 1 a

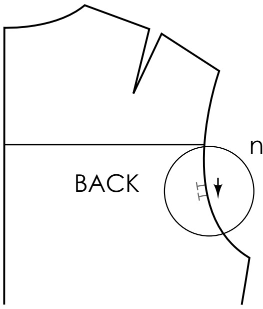


Figure 1 b

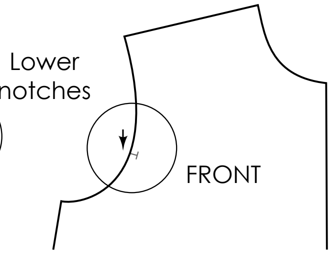
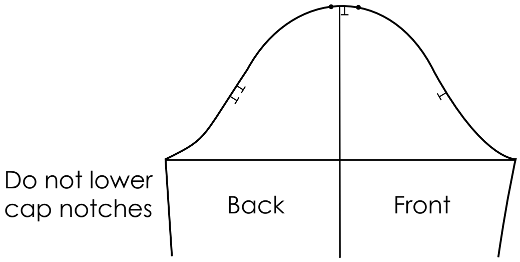


Figure 1 c



Figures 2a, b

Increase the front and back armholes:

- Add 1/16 inch to the shoulder tip to zero at shoulder/neck.
- Add 1/16 inch to the front and back armholes to zero at the waist.
- The increased armhole can absorb more of the cap ease.

Figure 2a

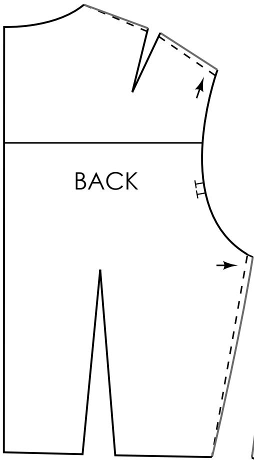
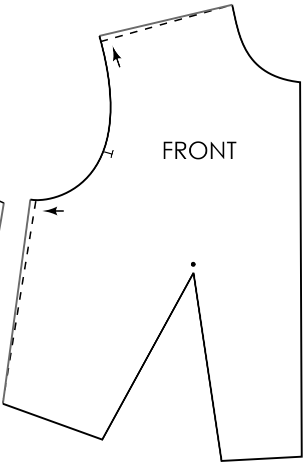


Figure 2b



Figures 3a and b

Transfer ease to the armhole from available darts:

- Transfer 1/8 inch from the front waist dart and shoulder dart of the back bodice. Mend the pattern, or use the pivotal method.

Figure 3a

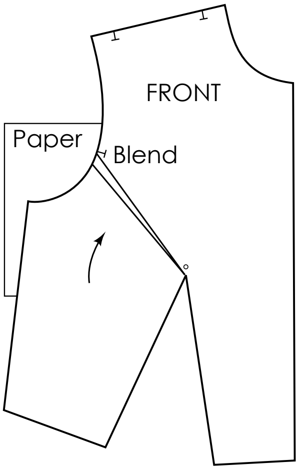
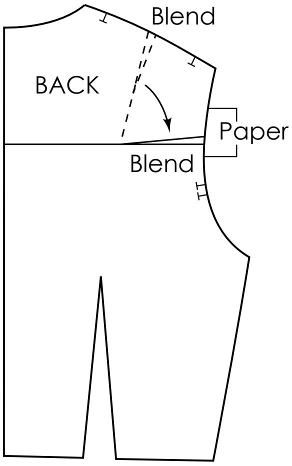


Figure 3b



Increase or Decrease the Biceps

Changing the width of the biceps also increases or decreases cap ease.

Figure 4

Increase biceps example: Add 1/2 inch to biceps

- Trace sleeve and all markings.
- Extend biceps line 1/4 inch to each side.
- Place sleeve with push pin on top of the extended line of the biceps. Pivot the sleeve upward until sleeve curves touch. Trace and blend with the traced cap. Pivot the sleeve downward until the under seams touch at wrist level. Trace and true the elbow dart.
- Repeat the process for the front sleeve. (Broken lines indicate the original sleeve pattern.)

Figure 5

Decrease biceps example: Decrease bicep 1/2 inch

- Trace sleeve and all markings.
- Mark 1/4 inch in from each end of the biceps.
- Place sleeve and push pin at the new biceps mark and follow the process shown in Figure 4.

Increase or Decrease Cap Ease

Problems: Puckering around the cap that appears like a puff sleeve (decrease cap height) (see Figure 7) or a sleeve swinging away from the side seam (increase cap height) (see Figure 6).

Figure 6

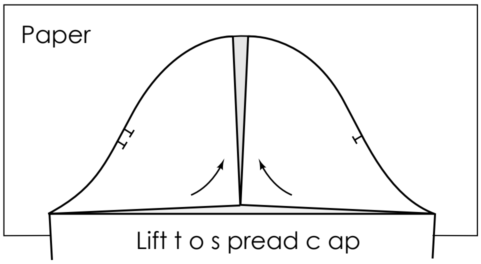

Paper
Lift to spread cap

Figure 7

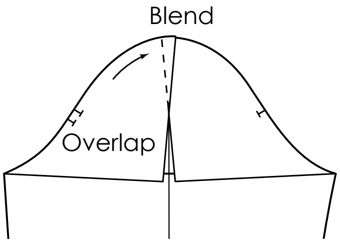

Blend
Overlap

Figure 4

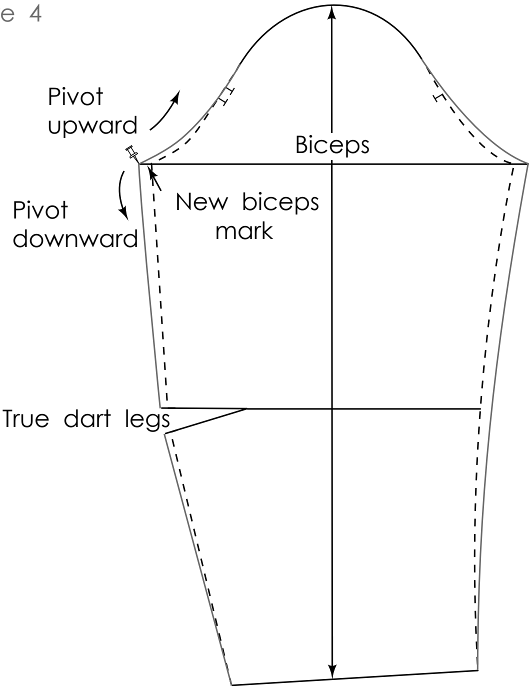
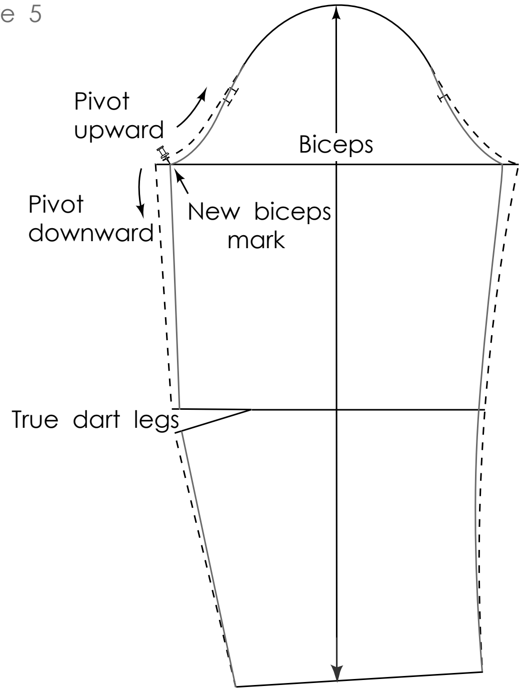

Pivot upward
Biceps
Pivot downward
New biceps mark
True dart legs

Figure 5


Pivot upward
Biceps
Pivot downward
New biceps mark
True dart legs

This method will also increase or decrease cap ease.

Figure 6

- To increase cap height, cut through the grainline to the corner of the front and back sleeve, and lift to spread the cap for the extra amount of ease needed.

Figure 7

- To decrease cap height, cut through the grainline to the corner of the front and back sleeve, and overlap the cap to eliminate the excess ease.

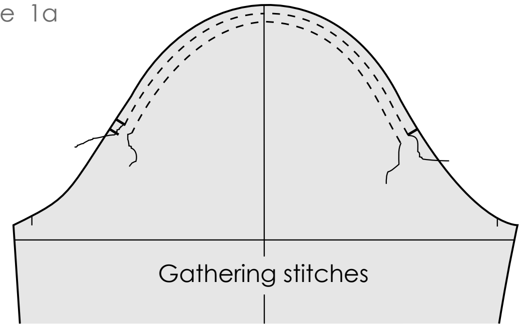
Setting the Sleeve into the Armhole

The sleeve is ready to be placed into the armhole. It is not known whether the sleeve will align with or hang slightly forward of the side seam. It is possible to precheck the fit by pinning the undersleeve to the armhole from notch to notch and pinning the cap notch to the shoulder seam. See Figures 2 and 4. If a sleeve hangs out of alignment, it can be rotated to correct the problem.

Figure 1a

- To prepare the sleeve, trace on muslin or the fabric of choice.
- Draw the center grainline and the biceps lines. Cut the sleeve from the fabric.
- Two methods can be used to sew the sleeve cap to the armhole: The cap ease can be crimped and stitched to the armhole or two rows of gather stitches can be made from front to back notch. Stitch one row at the seamline and the other 3/8 inch above. Pull the gather stitches to equal the distance from the front to back armhole notches. Ease should be evenly spaced to avoid puckers.
- Baste or stitch the sleeve to the armhole of the bodice for the test fit.

Figure 1a



Evaluate the Hang and Fit of the Sleeve

Does the sleeve align with or hang slightly forward of the side seam (Figure 1)? Does the sleeve hang toward the back (Figure 2) or more than 1 inch forward of the side seam (Figure 3)? Sleeves that hang out of alignment should be rotated until aligned.

Does the sleeve show puckers or puff around the cap? If so, reduce cap height; see Figures 6 and 7 in the Back Bodice Draft section earlier in this chapter.

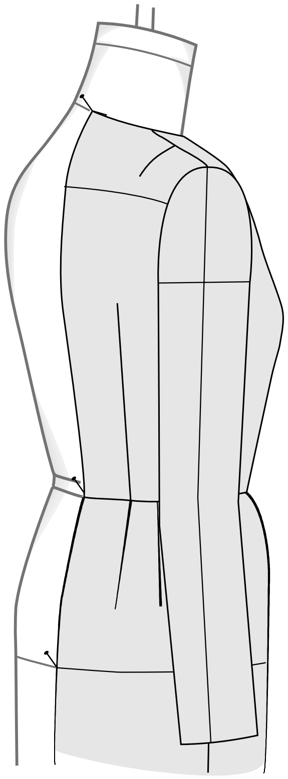
Is there insufficient cap ease? If so, increase cap height; see Figures 4 and 5 within the Front Bodice Draft section earlier in this chapter.

Sleeve with Perfect Alignment

Figure 1b

- The grainline of a well-balanced sleeve is aligned with or slightly forward of the side seam.

Figure 1b



Aligned

Rotating the Sleeve

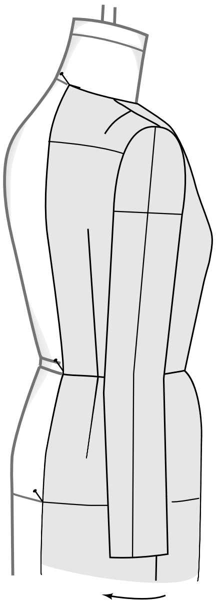
Rotating the sleeve will be necessary if the center grain of the sleeve hangs too far forward or too far back of the side seam of the garment. If either problem is observed, remove the sleeve from the armhole of the garment and follow the illustrations to correct the alignment of the sleeve.

Imperfect Alignment

Figures 2a, b

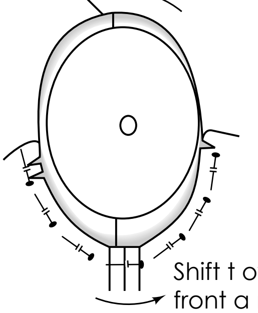
Sleeve hangs to the back of side seam.

Figure 2 a



Swing back of side seam

Figure 2 b


O
Shift toward front and pin

Pattern Adjustment

Figures 3c, d

Adjust the shoulder and side seam, as shown.

Figure 3 c

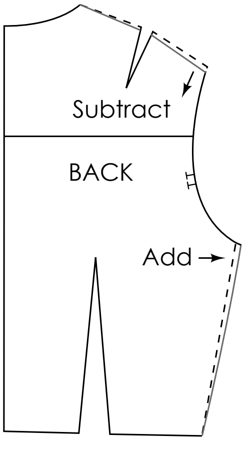
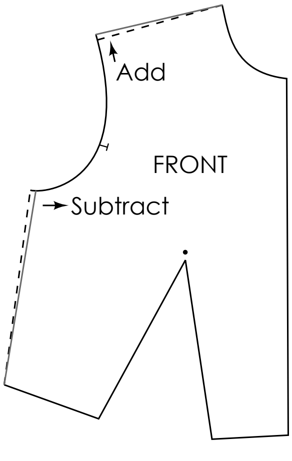

Subtract
BACK
Add

Figure 3 d

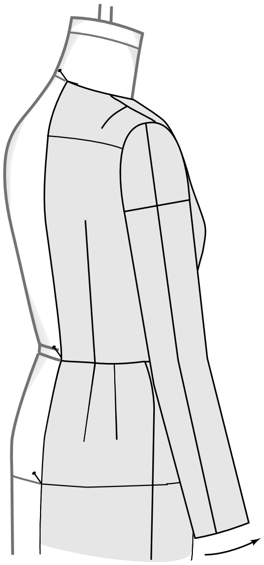

Add
FRONT
Subtract

Imperfect Alignment

Figures 4a, b

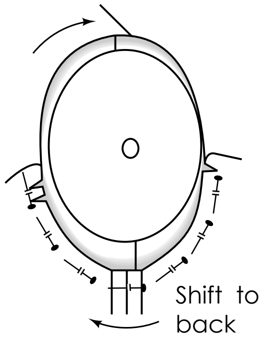
Sleeve hangs forward of side seam:

Figure 4a



Swing forward of side seam

Figure 4b


O
Shift toward back

Pattern Adjustment

Figures 4c, d

Adjust the shoulder and side seam, as shown.

Figure 4c

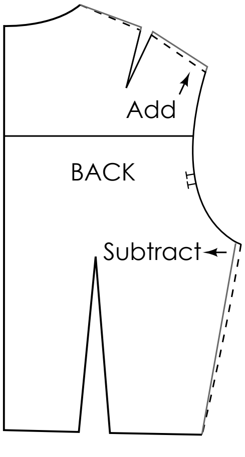
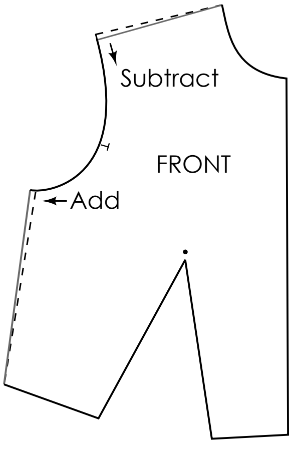
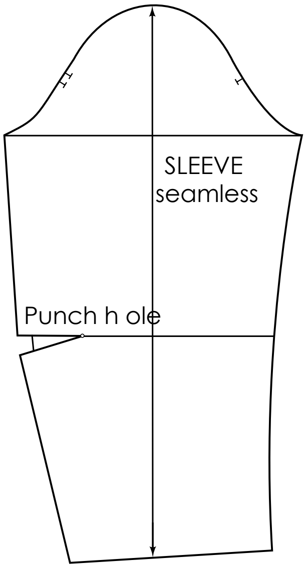

Add
BACK
Subtract

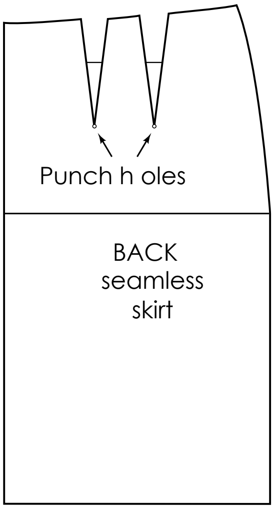
Figure 4d

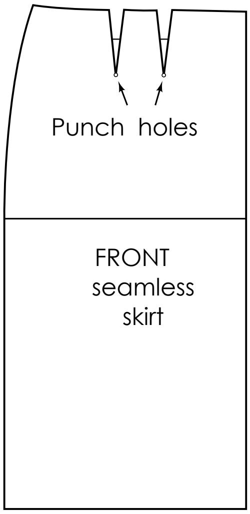

Subtract
FRONT
Add

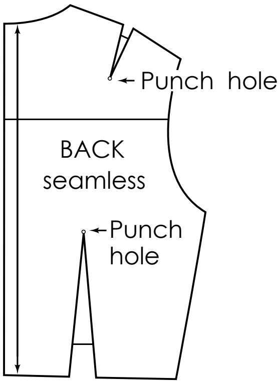
SEAMLESS WORKING PATTERNS

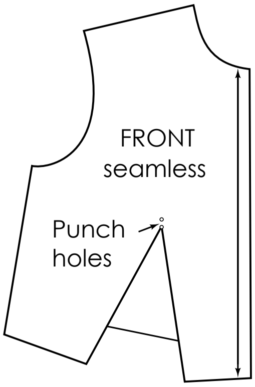
The basic pattern set should remain seamless to develop design patterns. Seams are added at the completion of the basic pattern and design patterns. The professional designer or patternmaker may prefer to develop design patterns with seamed patterns to save time. The darts are partially cut out and a punch hole is placed at the end of each dart for accuracy when tracing the pattern for manipulation.


SLEEVE
seamless
Punch hole


Punch holes
BACK
seamless
skirt


Punch holes
FRONT
seamless
skirt


Punch hole
BACK
seamless
Punch
hole


FRONT
seamless
Punch
holes

SELF-EVALUATION TEST

Matching Test

Record numbers that match the examples. To check your answers refer to the end of the chapter.

1. Changes 2-D to 3-D
2. Perfect fit
3. Cap ease for basic sleeve 3/8 inch
4. Gapping
5. Sleeve hangs to back
6. Puckers along cap line
7. Sleeve hangs out from side
8. Basic dress
9. HBL
10. Uneven hemline
11. Armhole notches
12. Equalize cap ease
13. Rotating sleeve
14. Biceps too loose
15. Bodice aligned
16. Working patterns
17. Stitched darts

____ Darts
____ Horizontal balance line
____ Once marked not moved
____ Insufficient cap ease
____ Misplaced fullness
____ HBL marked incorrectly
____ Balanced garment
____ Basic dress bridges the hollows
____ Cap height too short
____ Adjusting sleeve balance
____ Excessive cap ease
____ Control fit
____ Shift center cap notch
____ Bodice in balance
____ Decrease bicep
____ Used for pattern manipulation
____ Shift under seam to right

COMPLETING THE PATTERN

A completed pattern has seam allowance, pattern symbols (notches, a punch, and circles), grainline, and pattern information. Pattern symbols guide the seamstress in constructing the garment, and pattern information assists in the production process. If the suggested pattern information differs from that of the company's standards, defer to the company's standard.

Pattern Information

Write or print pattern information clearly. Patterns other than lining and interconstruction should be written in black felt-tip pen. Lining patterns are written in blue, interlining in green, and interfacing in red. Pattern information can be placed in the center of the pattern or placed along the grainline and on the right-side-up of each pattern.

Grainline. The grainline is drawn through the length of the patterns.

Pattern identification. Label each pattern *(bodice front, back, skirt, sleeve, collar, pocket).*

Style number. Write the code number of the pattern set—for example, 3363 (33 may identify the type of garment and 63 may identify the fabric).

Pattern size. Record the pattern size.

Pieces cut. Write the number of pieces cut from each pattern to complete the garment.

A line separates the size (10) from the number of pieces cut. See examples on the next page.

Seam Allowance

The following are general guidelines:

1/4 Inch

- All faced areas
- Sleeveless armholes
- Narrow spacing
- Extreme curves)

1/2 Inch

- Armholes with sleeves
- Waistlines
- Center lines
- Stylelines
- Side seams (vary: 3/4 inch, 1 inch)
- Zipper seams (vary: 3/4 inch, 1 inch)

Overlock Seam

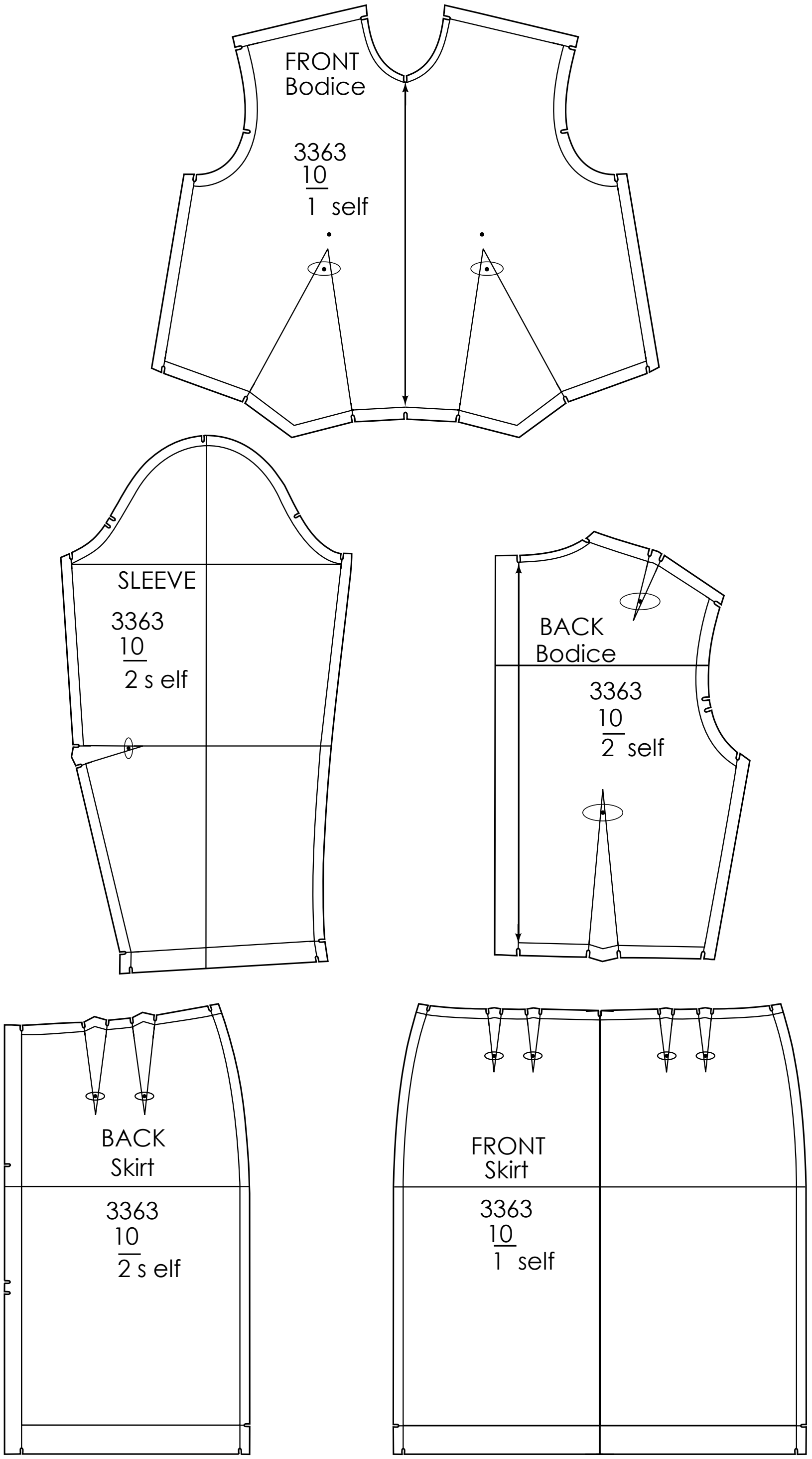
- 3/8-inch seam allowance

Punch/Circle

A symbol to indicate:

- Nearing the end of darts
- Pocket, or trim locations
- Button/Buttonhole placement
- Inverse corners

Basic Pattern Set—Seamed


FRONT
Bodice
3363
10
1 self
SLEEVE
3363
10
2 s elf
BACK
Bodice
3363
10
2 self
BACK
Skirt
3363
10
2 s elf
FRONT
Skirt
3363
10
1 self

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

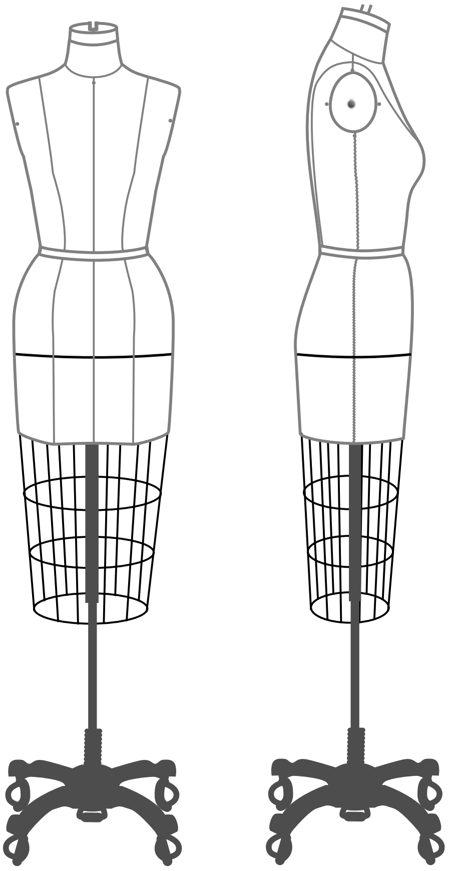
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

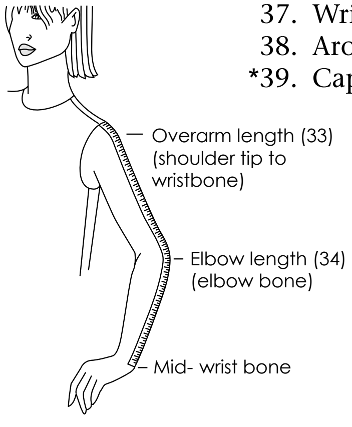
Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

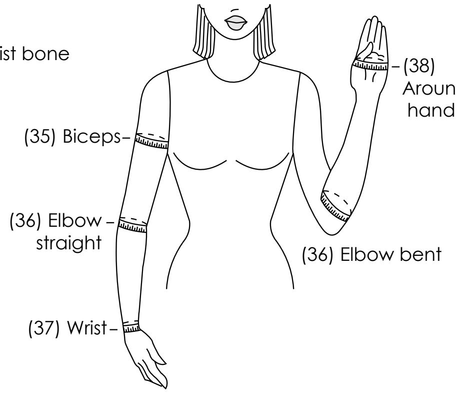
Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____

Length


Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone

Circumference



*Measuring the Arm

Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

ANSWERS TO SELF-EVALUATION TESTS

1. T; **2.** T; **3.** F; **4.** F; **5.** T; **6.** F; **7.** F; **8.** T; **9.** F; **10.** T; **11.** F; **12.** T; **13.** F; **14.** F; **15.** T; **16.** T; **17.** F; **18.** F; **19.** F; **20.** F

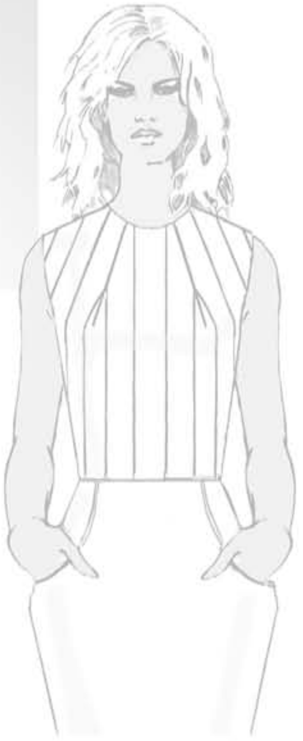
Matching test: 1, 9, 11, 3, 4, 10, 2, 8, 7, 13, 6, 17, 12, 15, 14, 16, 5

Dart Manipulation

From Chapter 4 of *Patternmaking for Fashion Design,* 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

Dart Manipulation
(Principle #1)

- WHY FLAT PATTERNMAKING?
- WORKING PATTERNS
- FLAT PATTERNMAKING METHODS
- THREE FLAT PATTERN TECHNIQUES
  - The Process
  - Design Analysis
- PATTERNMAKING TERMS
- TEST FIT
  - Qualities of the Flat Pattern Patternmaker
- DART MANIPULATION
  - Principle #1
  - Applying Dart Manipulation—Introduction to Design Patterns
  - Patternmaking Techniques
  - Charting Dart Locations
  - More About Darts
  - Completing the Dart
- SINGLE-DART SERIES—SLASH-SPREAD TECHNIQUE
  - Steps in the Process
  - Center Front Waist Dart
  - Mid-Shoulder Dart
  - Center Front Neck Dart
  - French Dart
- SINGLE-DART SERIES—PIVOTAL-TRANSFER TECHNIQUE
  - Mid-Neck Dart
  - Side Dart
  - Mid-Armhole Dart
  - Shoulder-Tip Dart
- THE SHOULDER DART
  - The Multidispersion Working Pattern for Use When Shoulder Dart Not Required
- THE BACK NECK DART
  - Excess Transferred to Armhole
- SELF-EVALUATION TEST
  - Consistency of Dart Angle
  - Proof of Principle #1
- TWO-DART SERIES—SLASH-SPREAD TECHNIQUE
  - Waist and Side Dart
  - Mid-Shoulder and Waist Dart
  - Mid-Armhole and Waist Dart
- TWO-DART SERIES—PIVOTAL-TRANSFER TECHNIQUE
  - Mid-Neck and Waist Dart
  - Shoulder-Tip and Waist Dart
  - Center Front Neck and Waist Dart
- SELF-EVALUATION TEST



WHY FLAT PATTERNMAKING?

Flat patternmaking is the fastest and most efficient method devised for developing design patterns that control consistency of size and fit of mass-produced garments. Flat patternmaking is unique among other methods in relying on copies of previously developed patterns (working patterns) for manipulation using the slash, or pivotal methods.

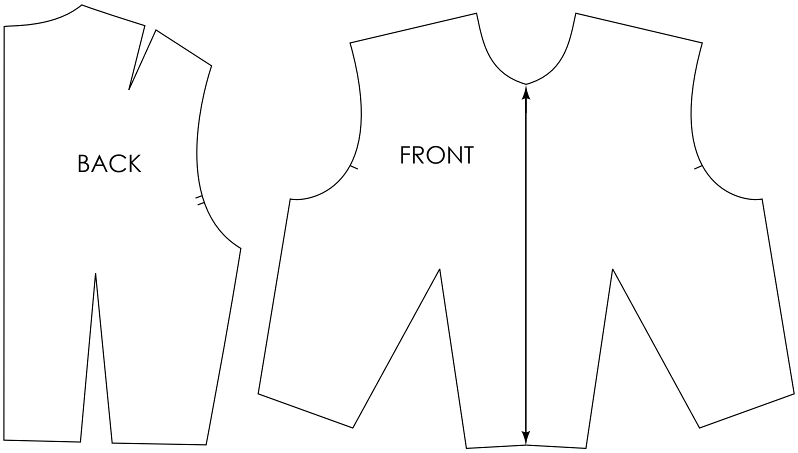
Flat patternmaking is based on three major patternmaking principles and techniques: *dart manipulation* (relocating darts), *added fullness* (adding more fabric in the design), and *contouring* (fitting to the hollows of a model's figure). All are explained in greater detail in this chapter. Read the poem and see the transformation of a working pattern into a design pattern (the author's signature design).

ODE TO A WORKING PATTERN

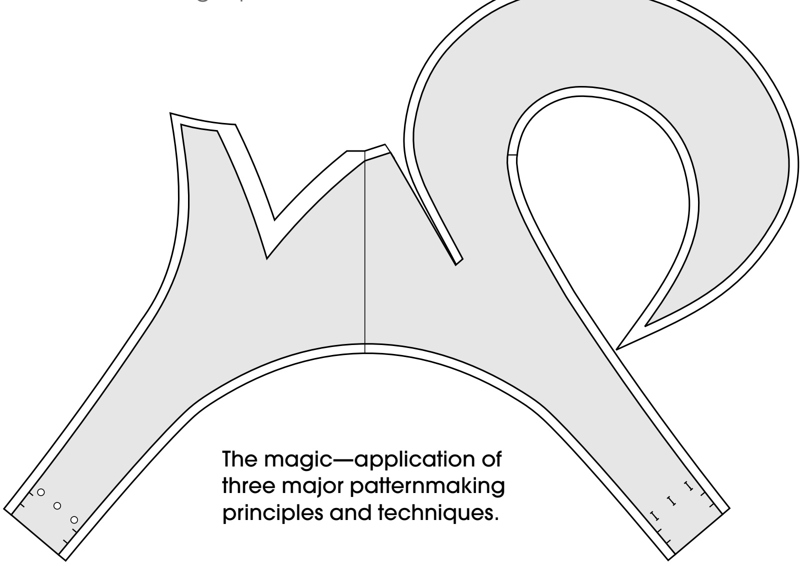
From a master pattern was I cloned,
a perfect shape to be changed and honed.
While I lay prone on this tabletop,
design lines are plotted nonstop.
Who is this person with scissor in hand
slashing, spread, lapping according to plan?
Look what has been done to me
that outrageous pattern is a travesty!
My original shape I can't reclaim,
for what I was is not the same.
But wait, now assembled and sewn,
what was confusing is now known.
I do not look the same it is true,
yet without me what could they do?
Draw the design on the model provided,
my shape the clue by which to be guided.
If perplexed, see later in text and you will find me,
darted, flared, and fitted and in all my glory
Designs simple and complex you can create
by learning flat patternmaking, so why wait?

—Helen Joseph-Armstrong

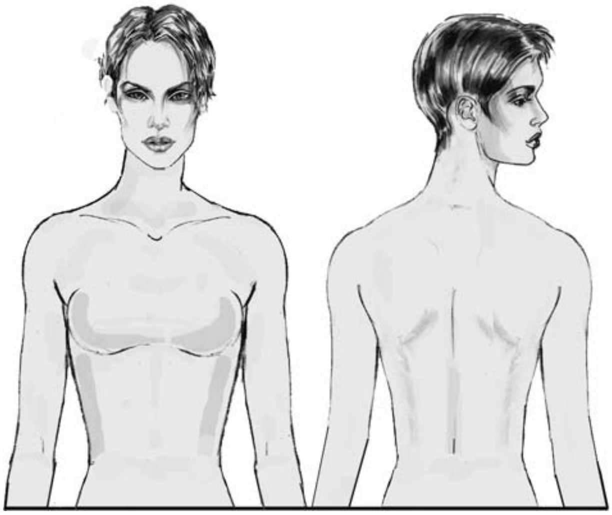
Working patterns



Design pattern



The magic—application of three major patternmaking principles and techniques.



I am waiting to be dressed in my design

WORKING PATTERNS

Working patterns should remain seamless for the inexperienced patternmaker (for clarity) and for drafting more complex patterns where joining parts overlap. Experienced patternmakers may choose to work with seamed patterns.

A pattern of any type can be a working pattern, especially if a pattern exists that closely relates to a design. For example, if the design has a princess line and the only difference is that the panels are gathered, the patternmaker will choose a princess line pattern to copy, if one is available. This saves time because part of the design detail has already been worked out.

Always trace a copy of the working pattern for manipulation when using the slash method for pattern development. The original pattern is saved as a base for other designs.

FLAT PATTERNMAKING METHODS

There are two flat patternmaking techniques: *Slash method*—to relocate darts, slash to open the pattern for more fabric, or slash to overlap for a closer fit.

Pivotal/transfer method—the original pattern is pivoted and traced in sections until the new pattern shape is completed without slashing. Both pattern methods are explained and illustrated in this chapter.

A working pattern becomes a design pattern after its shape changed through manipulation.

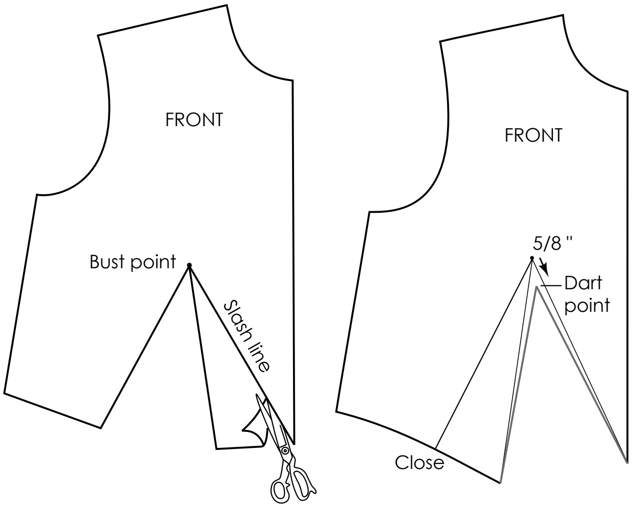
THREE FLAT PATTERN TECHNIQUES

Dart manipulation. Changing the location of a dart within the pattern frame. Remember that the dart is responsible for fit and will be part of the design in one form or another.

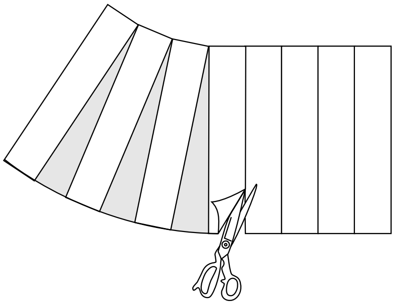
Adding fullness. Applies when design fullness is greater than the dart excess can provide. Added fullness is not directed to the pivotal point (bust). Adding to the pattern's outline also indicates that added material is needed for the design.

Contouring. Fitting to the contour above, below, and in between the bust, leaving the dart excess to be absorbed into stylelines, or gathers. Gapping ease caused by cut-out neck lines and armholes is transferred to be absorbed.

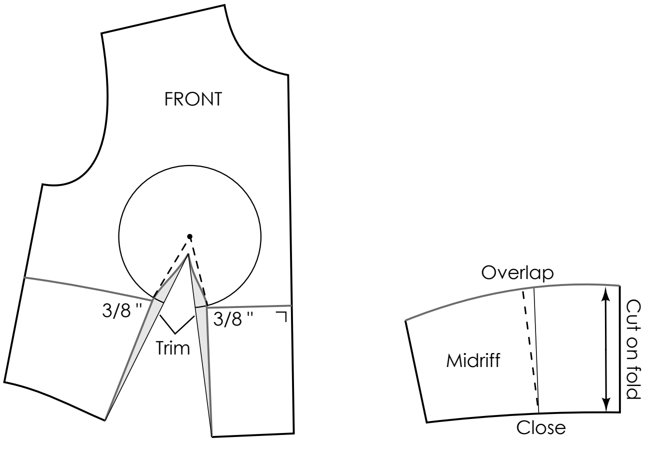
Dart Manipulation



Adding Fullness



Contouring



The Process

The process for creating design patterns using the flat patternmaking system:

- First, the design is analyzed and its creative elements identified.
- Second, the patternmaker identifies which of the three principles and techniques to apply in creating pattern shapes for a three-dimensional replica of the design. Other design elements that do not change the shape of the patterns are part of the finished design.
- Third, the working pattern—a traced copy using the slash method or the original pattern for the pivotal method—is chosen.

Design Analysis

Through design analysis, an experienced patternmaker is able to identify which principles and techniques to apply in developing correct pattern shapes that end in a three-dimensional replica of the design.

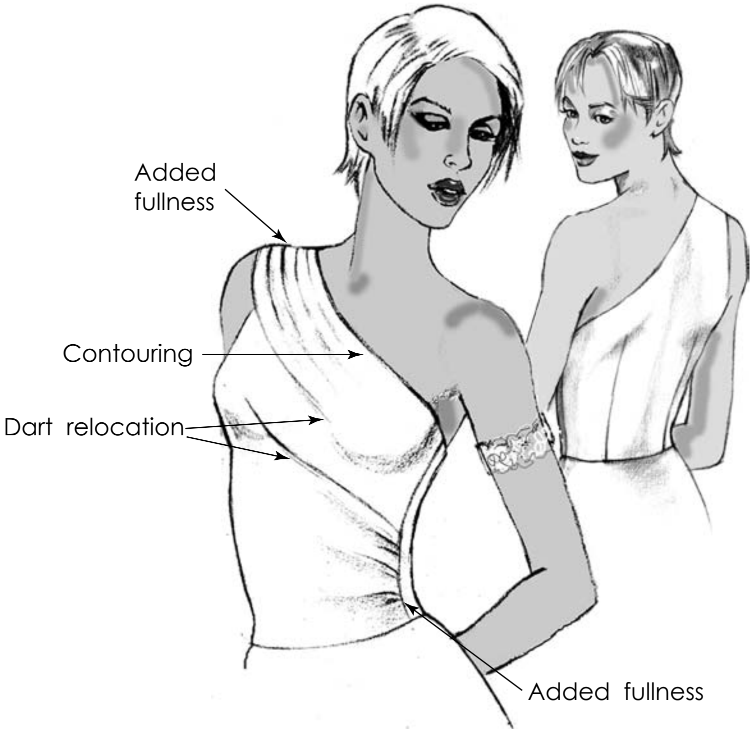
The example illustrates how a sketch should be marked after the patternmaker has identified principles and techniques in preparing for pattern manipulation. The design incorporates all three principles and patternmaking techniques.

To develop these skills, the patternmaker should cut muslins for each design project. Place the muslin on a form or model to study and compare the relationship between the pattern shapes and resulting design.

Eventually, when looking at a design, the pattern shapes will be visualized, and when looking at the shapes of patterns, the design is revealed.

Design projects in the text provide analyses of each design and the accompanying principles and patternmaking techniques, from simple to complex.

Each principle and patternmaking technique is carefully explained with clear illustrations and explanations throughout the text.



PATTERNMAKING TERMS

Patternmaking terms and their definitions will be introduced wherever appropriate throughout the chapter to help facilitate understanding.

Pattern plot. The act of placing lines on a traced copy of the working pattern relating directly to the design features. The lines are used as guidelines for pattern manipulation.

Pivotal point. A designated point on the pattern (for example, the bust point). The pattern is slashed to, or pivoted from, this point. This allows the pattern shape to be altered without changing its size or fit.

Pattern manipulation. The act of slashing and spreading, or pivoting a pattern to alter its original shape. The new pattern shape represents design features of the garment.

Design pattern. The finished pattern that contains all the features related to the design.

TEST FIT

As each design project is completed, the design should be cut in preshrunk muslin (or fabric chosen for the design) and placed on a form or model for a test fit. One-half of the garment is needed when fitting the form (unless it is an asymmetrical design, which requires a full garment). A full garment is required when fitting the model. Seam allowances can be added in one of two ways for a test fit:

1. The seamless pattern can be traced on cloth, adding seam allowance directly on the fabric.
2. Seam allowances can be added to the pattern before cutting in cloth.

The garment should be stitched using 6 to 10 stitches per inch. The seams are pressed without steam. Place the garment on the form or model for the test fit.

Qualities of the Flat Pattern Patternmaker

A patternmaker, with earnest dedication, will be able to:

- *Analyze* the similarities and differences between design and working pattern, and can identify which patternmaking principles and techniques to apply to the developing design.
- *Visualize* in three dimensions as the design lines are plotted on the working pattern. The process is done while the pattern lays flat on a tabletop, hence, the name flat patternmaking.
- *Finalize* the process through manipulating the plotted design lines using the selected patternmaking principles and techniques in creating an exact replicate of the design.

As you continue your studies, you will learn all the necessary fundamentals that form the basis for confidence in developing designs both simple and complex (see Ode to a Working Pattern). As your knowledge increases, so also will your appreciation of the flat patternmaking method. I encourage you to experiment with designs of your choice. Use the half-forms, size 8, as a practice tool when space is limited.

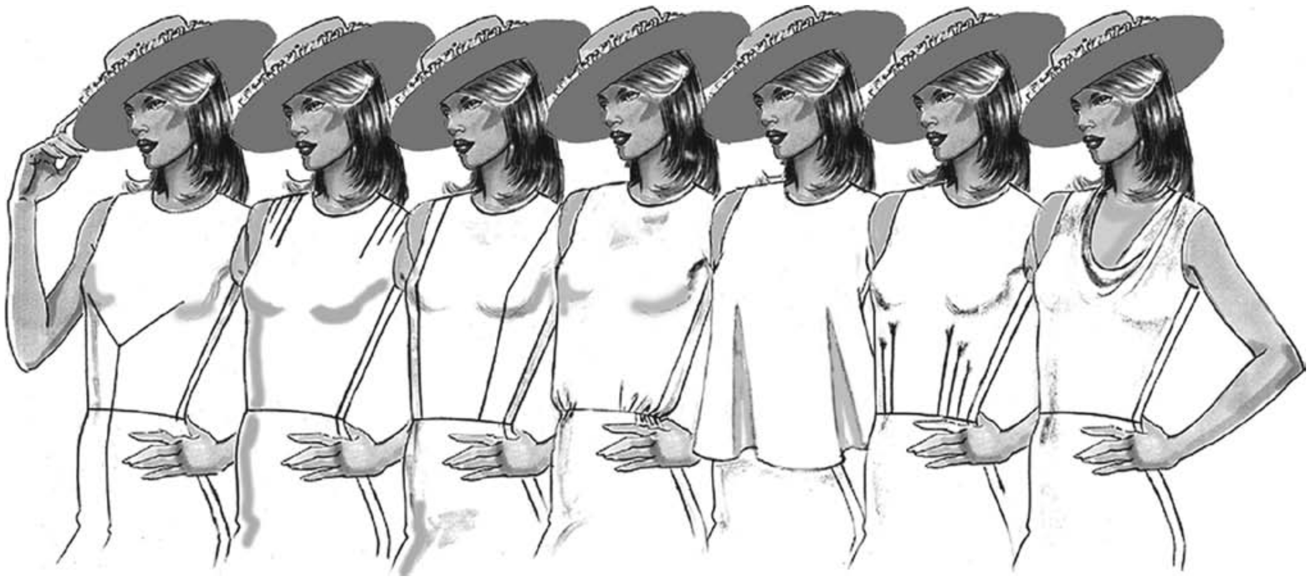
DART MANIPULATION

Principle #1

Principle. A dart can be transferred to any location around the pattern's outline from a designated pivotal point without affecting the size or fit of the garment.

Corollary. The dart excess (space between the dart legs) can be used as gathers, pleats, tuck-darts, stylelines (those that cross over the bust point or within 1 inch of the bust), cowls, flare (unstitched dart legs), or ease in the armhole for casual garments. The creative use of the dart excess is called a *dart equivalent.*

The dart or its equivalent will *always* be somewhere within the pattern where it was first developed. Dart(s) or dart equivalents will direct themselves toward the pivotal point. A dart ends before reaching the pivotal point and should not go beyond it, especially the pivotal point of the bust.



Style d arts Multiple darts Stylelines Gathers Flare Tuck- darts Cowl

Applying Dart Manipulation—Introduction to Design Patterns

The technique is applied when the dart of working patterns (bodice, skirt, sleeve, or any working pattern) are relocated in the process of creating design patterns. To create a design pattern, the design is analyzed first to identify the location of the dart or equivalent before manipulating the pattern.

The following design projects illustrate the beginning of pattern manipulation, and each process should be completed in the order given because each will help to prepare the patternmaker or designer for more advanced work. Both artistic and technical skills are required to successfully creat design patterns.

Patternmaking Techniques

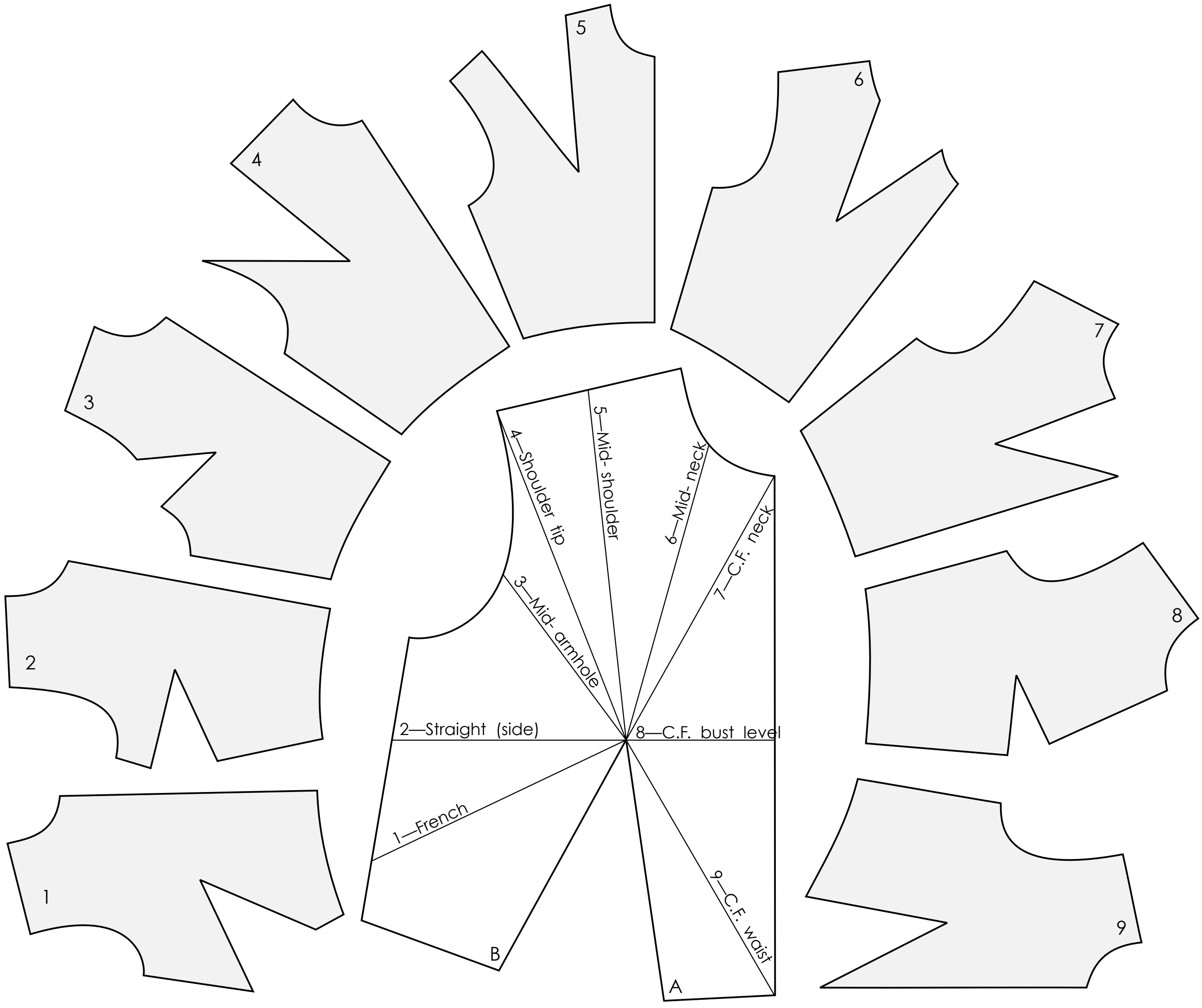
- *Slash-spread and overlap:* Through this method, the patternmaker is able to see how the original working pattern changed into a design pattern.
- *Pivotal-transfer:* This method does not require that the working pattern be slashed in order to change its original shape into a design pattern. It is a faster method and, with experience, it is preferred. Project examples start in the section entitled Single-Dart Series—Pivotal Transfer Technique later in this chapter.

Charting Dart Locations

To prepare for the following projects, trace a *copy* of the basic front bodice pattern on tag board and draw guidelines from bust point, marking each dart location. The guidelines establish common areas for dart relocation and for creating design patterns. However, they are not the only dart locations because a dart can be transferred anywhere around the pattern's outline. The selected dart locations have specific uses and names. The names should be learned for clarity when communicating in the design room. Label the waist dart legs A and B.

The French dart can be placed at any angle below the straight dart; the C.F. (center front) bust dart and straight dart are squared from the center front. The mid-armhole dart is directed from bust point to the armhole notch, and the shoulder dart is placed at the princess line.

The shapes of the patterns that encircle the charted pattern differ from one another and are the result of transferring the original waist dart to the designated locations. The size and fit have not been altered by this process. For verification, refer to the Side Dart section, Figure 2, later in this chapter.



More About Darts

All darts radiate from convex shapes of the figure. The bust is rounded, not pointed. If the dart is stitched to the end of the pivotal point, strain lines will appear around the bust, distorting the fit of the garment. The dart should end at a distance from the bust point to release fabric (fullness) for the bust mound.

Completing the Dart

The dart can be finished one of two ways:

1. Trim dart excess to within 1/2 inch of the seamline before stitching the dart (Figure 3).
2. Fold the dart excess under and stitch on the seamline (Figure 5).

Figure 1: Direction of Dart Excess

Follow the arrows for direction of the dart excess when folded. The excess is placed on the back side of the pattern and on the wrong side of the garment.

Excess folds downward for darts located anywhere along the

- Armhole
- Side seam
- Center lines

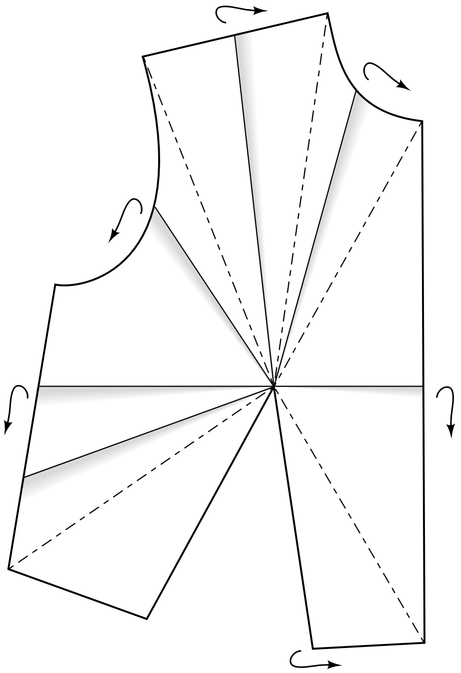
Excess folds toward the center front/back for darts located anywhere along the

- Shoulder
- Neckline
- Waistline

The folded dart follows the shape of the seam it lays against. If not, the dart will twist when stitched.

Darts placed at corners (broken lines) of the pattern are usually trimmed to 1/2 inch of seamline.

Figure 1

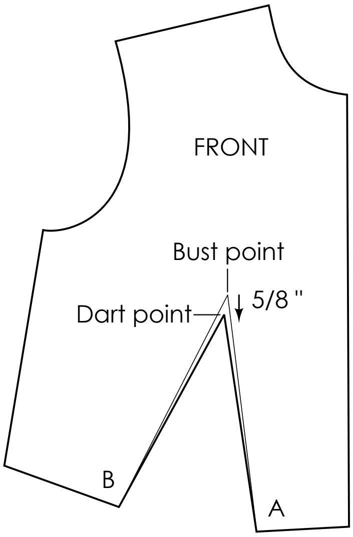


Locating Dart Point—Applies to the One-Dart Control

Figure 2

- After the dart is relocated, draw guidelines (light lines) from waist to the **bust point.**
- Center a mark 5/8 inch below bust point to establish the **dart point.**
- Draw the actual dart legs from waist to the dart point mark. Label A and B.

Figure 2

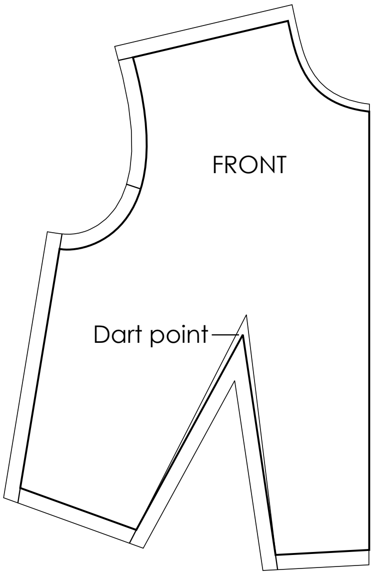


Dart Excess Trimmed

Figure 3

- Add a 1/2-inch seam allowance; notch and cut from paper.
- Punch and circles not required.

Figure 3

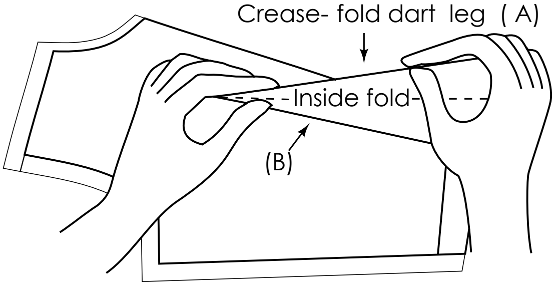


Dart Excess Folded

Figure 4

- The example illustrates the waist dart excess folded toward center front. For all other dart locations, see arrow directions in Figure 1 on the previous page.
- Cup the pattern when crease-folding the dart leg A to B. The crease ends at dart point (not bust point).

Figure 4

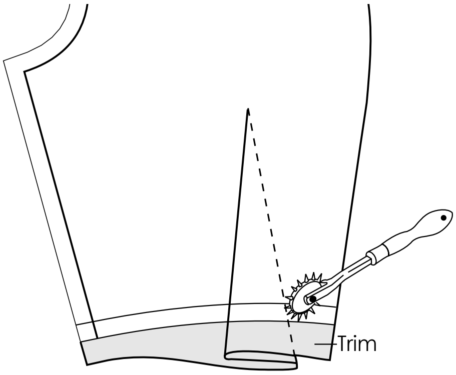

Crease- fold dart leg (A)
Inside fold
(B)

Tracing the Folded Dart

Figure 5

- With the dart folded, cup the pattern and trace across the fold at waist. The tracing will give the correct shape to the dart excess.

Figure 5

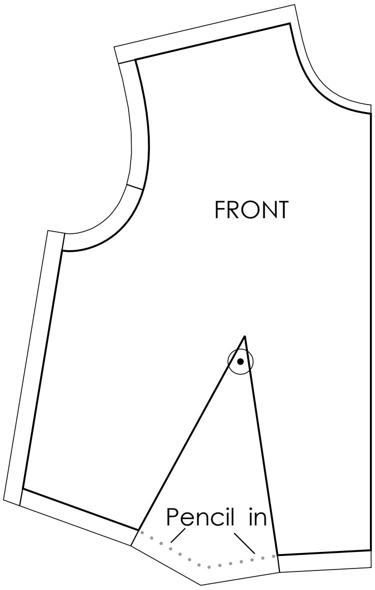


Punch and Circle Required

Figure 6

- Unfold the dart and pencil in perforated marks.
- Center a mark 5/8 inch below the dart point for the location of the punch and circle symbol (guide alerting the seamstress to sew 1/2 inch beyond the mark to the dart point).
- Add 1/2-inch seams, notch, and punch/circle.
- Trace, cut, and stitch for test fit.

Figure 6



SINGLE-DART SERIES—SLASH-SPREAD TECHNIQUE

Flat patternmaking depends on previously developed patterns as a base for creating design patterns. The chosen working pattern (charted one-dart seamless basic bodice) is traced for the following projects. Remember: The working pattern is *never altered* (only traced) because it is used to create other designs. Save the pattern projects for future use.

Steps in the Process

Design analysis. Identifying where the dart is located. (Added fullness and contouring are not a part of this series.)

Plotting. Drawing line(s) on the traced pattern to indicate where the design elements are located. In the following projects, a line is drawn from the bust point to the new dart location.

Manipulation. Applying the slash method to change the shape of a traced pattern into a design pattern. The traced pattern is cut from paper and slashed on the plotted line to, but not through, the bust point (pivotal point). This is done to create a hinge, which allows the pattern part to move freely without the piece falling from the pattern through manipulation. If working with seamed patterns, include slashing from dart point to, but not through, bust point.

Center Front Waist Dart

Design Analysis: Design 1

The waist dart is relocated to the center front waist. Study the relationships among the design, the plot, and the finished pattern shape. The striped fabric illustrates direction of the grainline.

Pattern Plot and Manipulation

Figure 1

- Trace the charted pattern. Mark the center front waist dart. Label dart legs A and B.
- Draw slash line from center front waist to bust point.

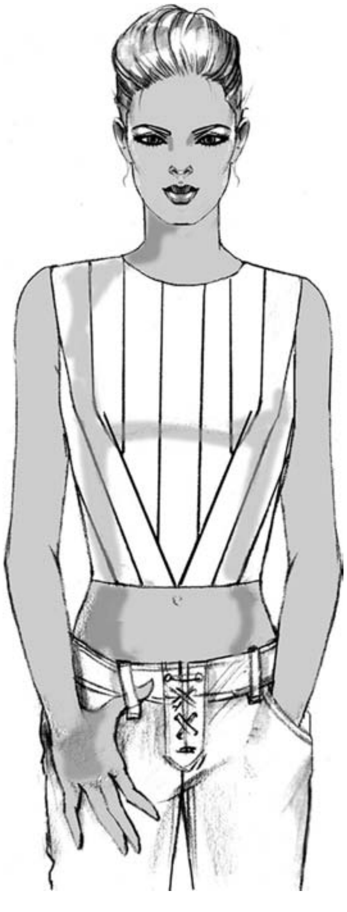


Figure 1

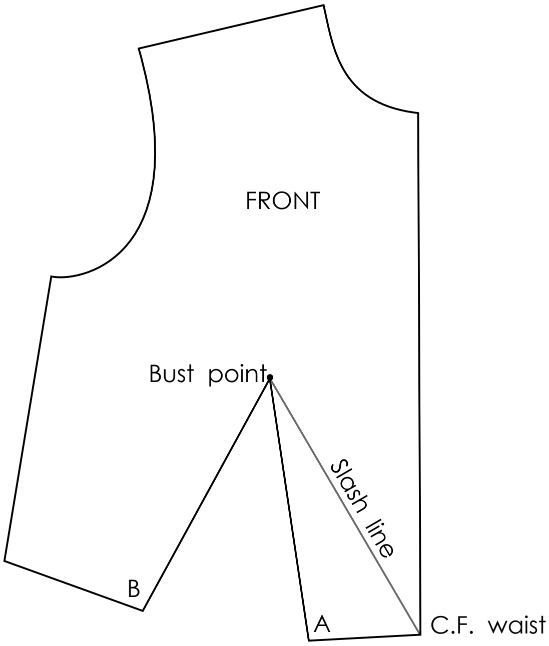


Figure 2

- Slash pattern from center front waist to, not through, bust point.

Figure 2

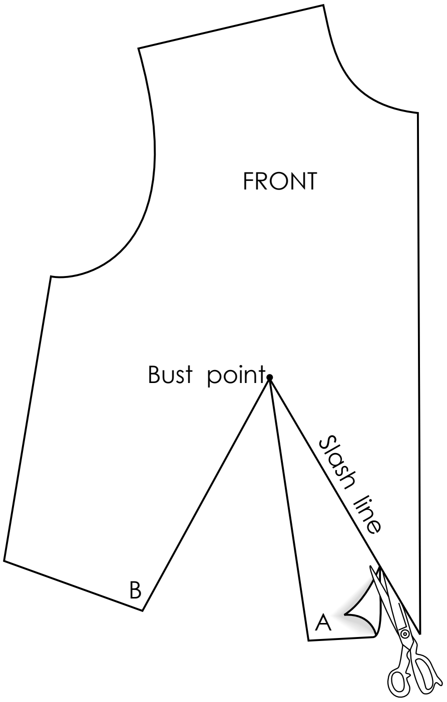

FRONT
Bust point
Slash line
B
A

Figure 3 New Pattern Shape

- Close dart legs A and B. Tape.
- Place pattern on paper and retrace.
- Center dart point 5/8 inch from bust point.
- Draw dart legs to dart point.

Figure 3

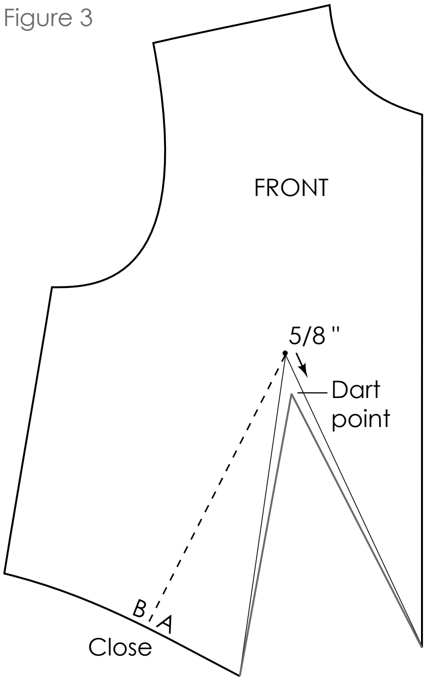

FRONT
5/8 "
Dart point
B
A
Close

Figure 4

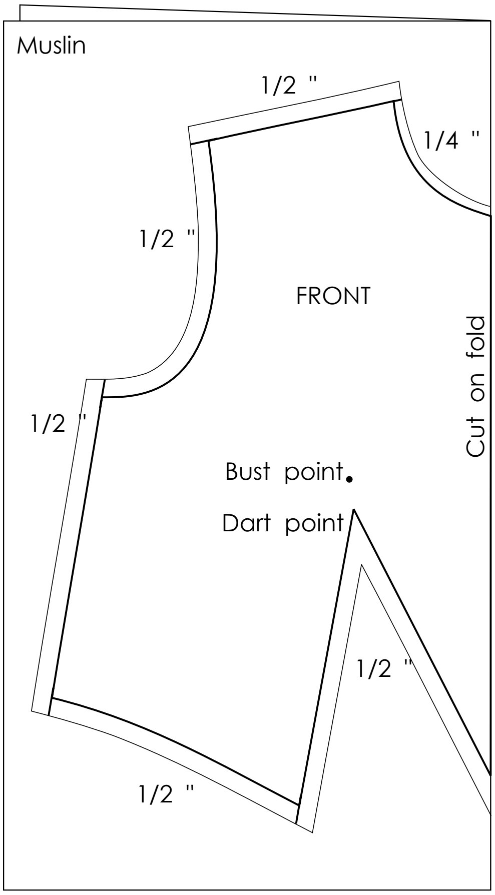

Muslin
1/2 "
1/4 "
1/2 "
FRONT
Cut on fold
1/2 "
Bust point
Dart point
1/2 "
1/2 "

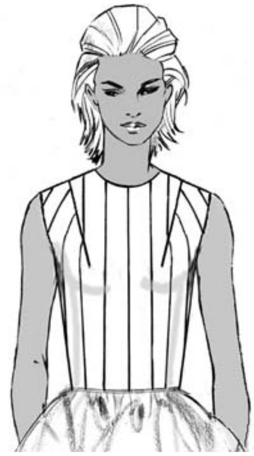
Figure 4

- Add seams to pattern or muslin, as shown.
- Complete pattern, using general pattern information for guidance, if necessary.
- To test fit, cut on fold for full front; for half-muslin, add a 1-inch extension at front. Cut back pattern to complete design (not illustrated).
- Stitch and press the muslin (no steam). Place on form or model for a test fit.

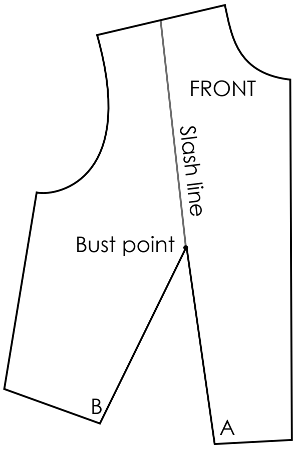
Follow this procedure for the next three projects.

Follow instructions given on the previous two pages to complete the projects. Save patterns for use later.

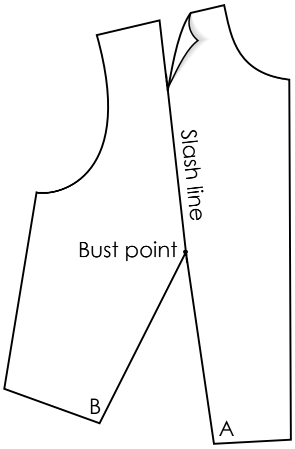
Mid-Shoulder Dart



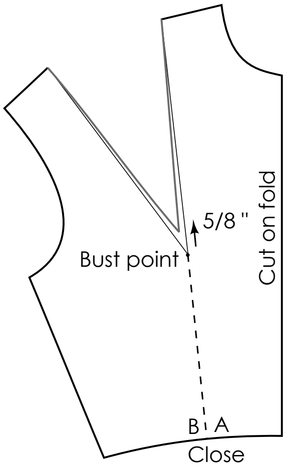
Plotted Line


FRONT
Slash line
Bust point
B
A

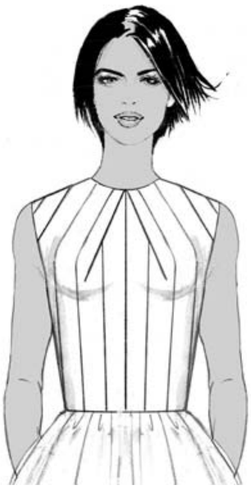
Slash toBust


Slash line
Bust point
B
A

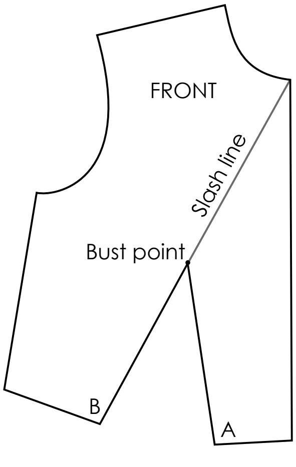
Manipulate/Close Dart


5/8 "
Bust point
Cut on fold
B
A
Close

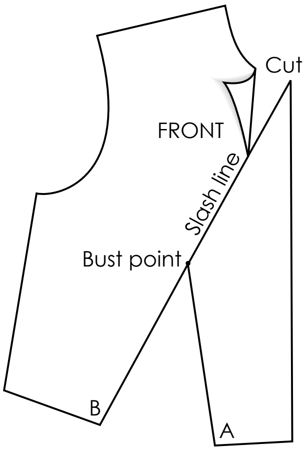
Center Front Neck Dart



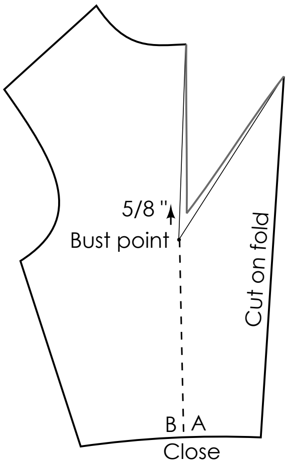
Plotted Line


FRONT
Slash line
Bust point
B
A

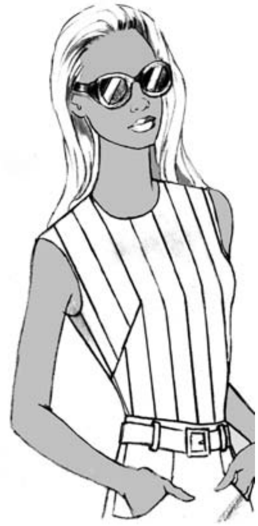
Slash toBust


Cut
FRONT
Slash line
Bust point
B
A

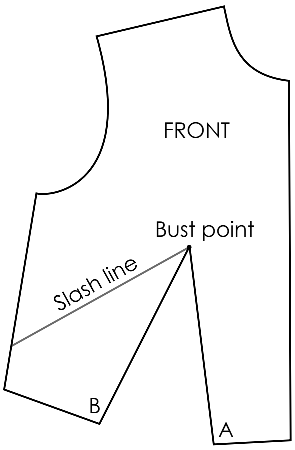
Manipulate/Close Dart


5/8 "
Bust point
Cut on fold
B
A
Close

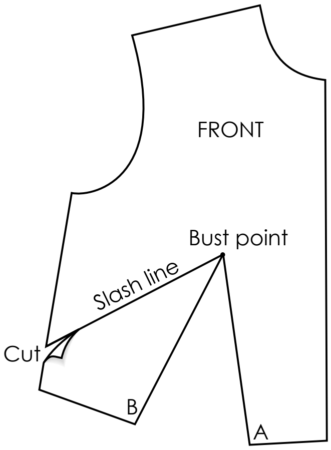
French Dart



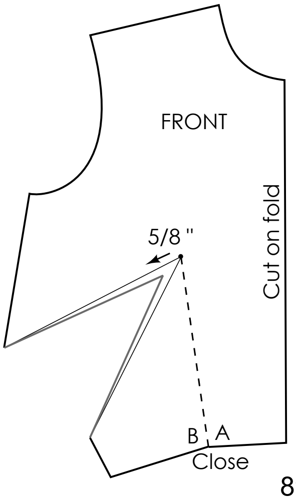
Plotted Line


FRONT
Bust point
Slash line
B
A

Slash toBust


FRONT
Bust point
Slash line
Cut
B
A

Manipulate/Close Dart

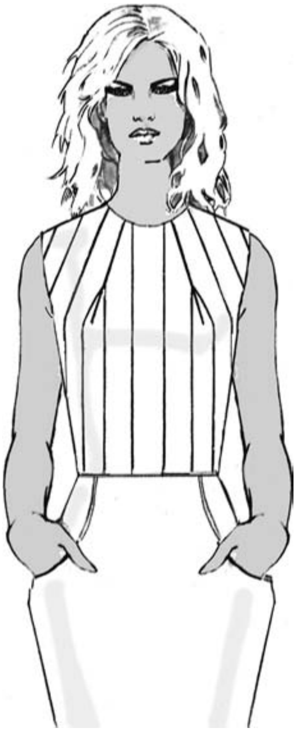

FRONT
5/8 "
Cut on fold
B
A
Close

SINGLE-DART SERIES—PIVOTAL-TRANSFER TECHNIQUE

The pivotal-transfer technique involves manipulating the *original* working pattern into a new shape by pivoting, shifting and tracing, instead of cutting. The working pattern is placed on top of pattern paper with a push pin placed through the pivotal point. To transfer a dart to a new location, the dart is marked on the paper underneath and then traced to an existing dart on the pattern. The pattern is then pivoted, closing original dart legs while opening space for the new dart. The remaining untraced pattern is traced to paper underneath. Once an area of the pattern has been traced, *it is not traced again*. This will be illustrated in the following design projects.

Push pins are also used to transfer stylelines within the pattern's frame. When the pattern is removed from the paper, the lines are trued with straight or curved rulers, using the pin marks as a guide. The shaded area on the illustrations indicates the part of the pattern affected when traced. Complete the sequence of exercises and save the patterns for future use.

Mid-Neck Dart



Design Analysis: Design 5

The dart extends from mid-neck to bust point. Note the relationships that exist among the design, the plot, and the finished pattern shape.

Pattern Plot and Manipulation

Figure 1

- Place the working pattern on paper with a push pin through the bust point (pivotal point).
- Mark the mid-neck location (point C) and dart leg A on paper.
- Trace the section of pattern from dart leg A to C (blue line and shaded area).

Figure 1

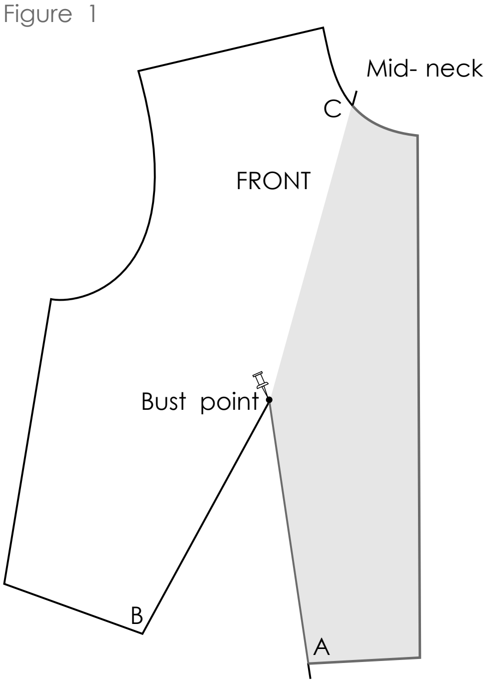


Figure 2

- Pivot pattern until dart leg B touches A on paper (closes waist dart and opens space for the mid-neck dart).
- Trace the remaining section of the pattern from dart leg B to point C on the pattern (blue line and shaded area). *Note:* When the pattern is pivoted, it will overlay the previously traced pattern section. This is a natural occurrence. Remember, once a section of the pattern is traced, *it is not traced again.*

Figure 2

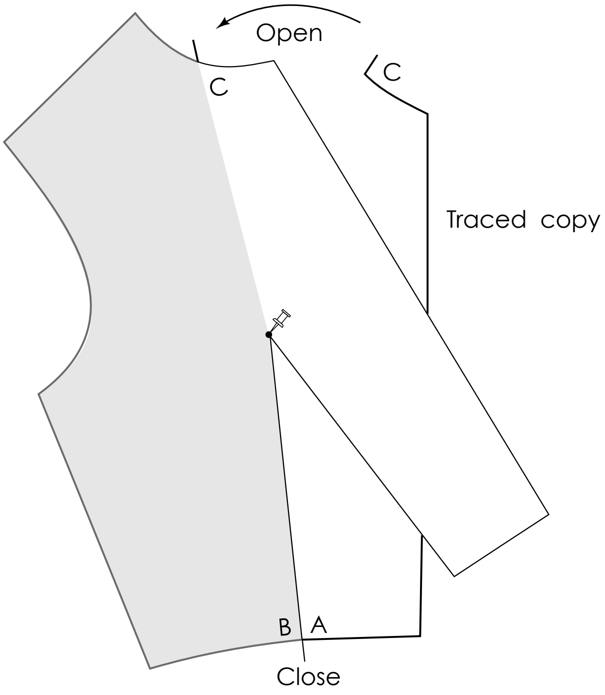
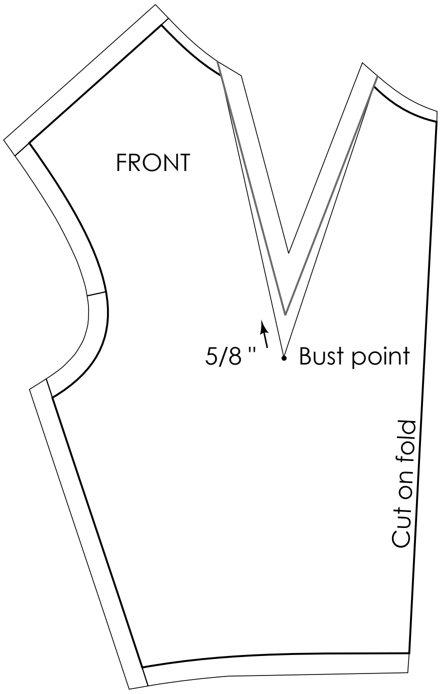


Figure 3 New Pattern Shape

- Remove the working pattern from paper.
- Draw dart legs to bust point.
- Center the dart point 5/8 inch from the bust point.
- Redraw dart legs to the dart point.
- Add 1/2-inch seams and 1/4 inch at neckline.
- Cut in muslin for test fit.

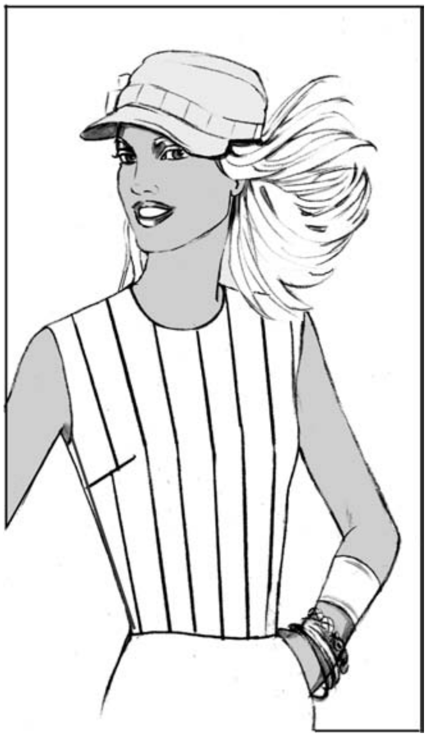
Figure 3



Side Dart

Analyze the design; plot and develop patterns for Designs 6, 7, and 8.

Design Analysis: Design 6



Pattern Plot and Manipulation

Figure 1

- Mark side dart location (C) and trace pattern from A to C (shaded area).

Figure 1

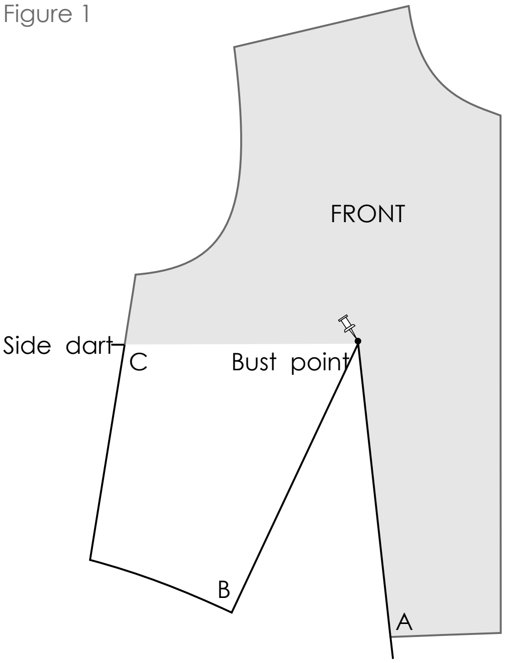

FRONT
Side dart
C
Bust point
B
A

Figure 2

- Pivot the pattern until dart leg B touches point A on paper (closes waist dart and opens space for side dart).
- Trace remaining pattern.

Figure 2

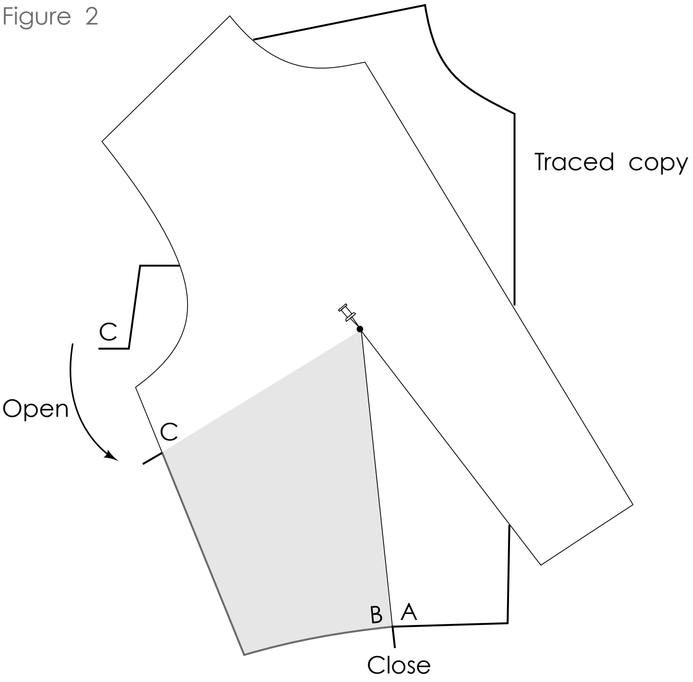
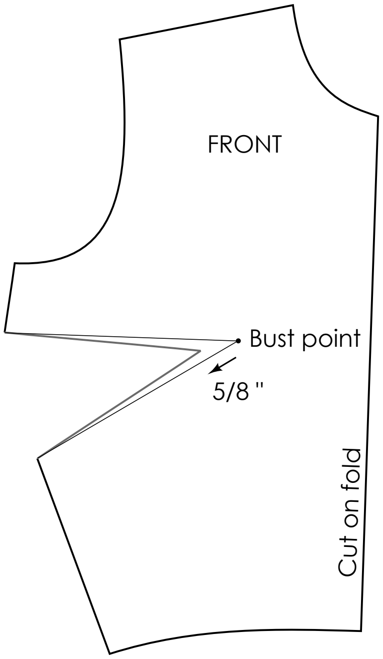

Traced copy
C
Open
C
B
A
Close

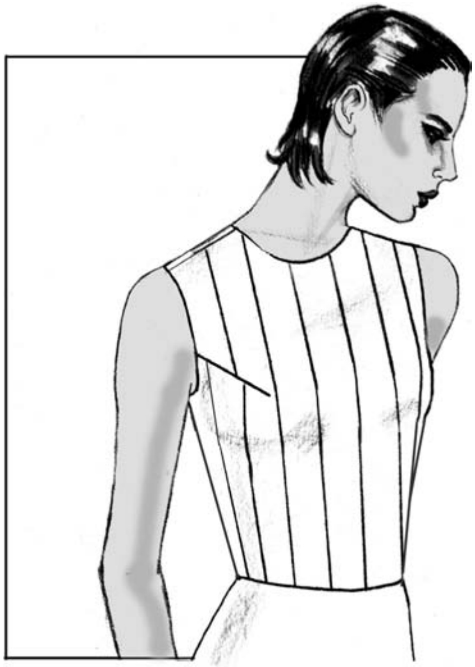
Figure 3 New Pattern Shape

- Remove the pattern, draw dart legs to bust, center dart point 5/8 inch from bust point, and draw new dart legs.

Figure 3


FRONT
Bust point
5/8 "
Cut on fold

Mid-Armhole Dart



Design Analysis: Design 7

Pattern Plot and Manipulation

Figure 1

- Mark mid-armhole dart location (C) and trace pattern from A to C (shaded area).

Figure 1

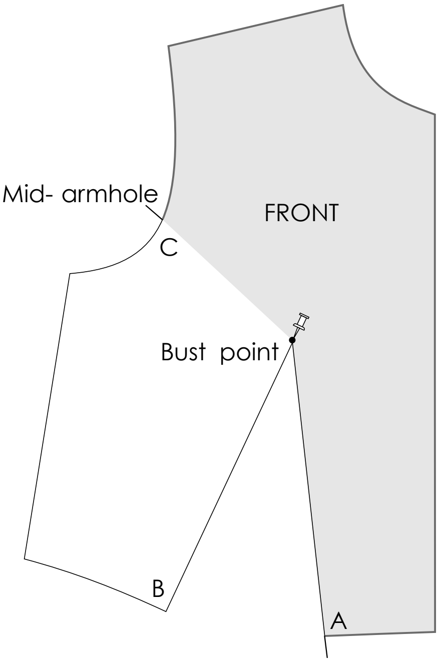

Mid- armhole
C
FRONT
Bust point
B
A

Figure 2

- Pivot pattern until dart leg B touches point A on paper (closes waist dart, and opens space for mid-armhole dart).
- Trace the remaining pattern.

Figure 2

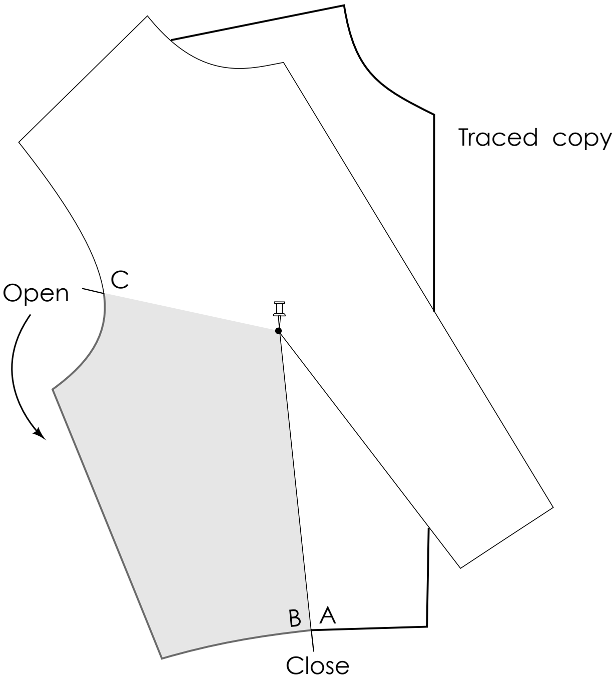
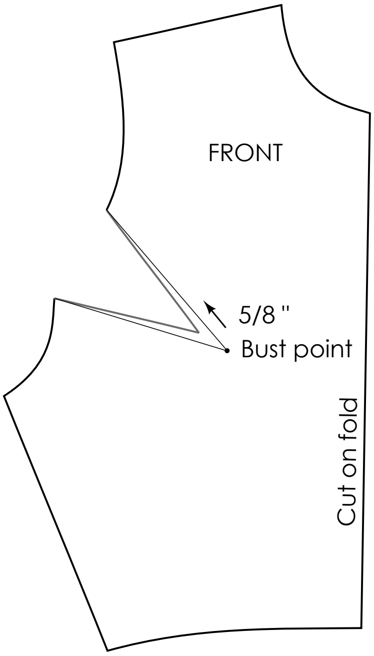

Traced copy
Open
C
B
A
Close

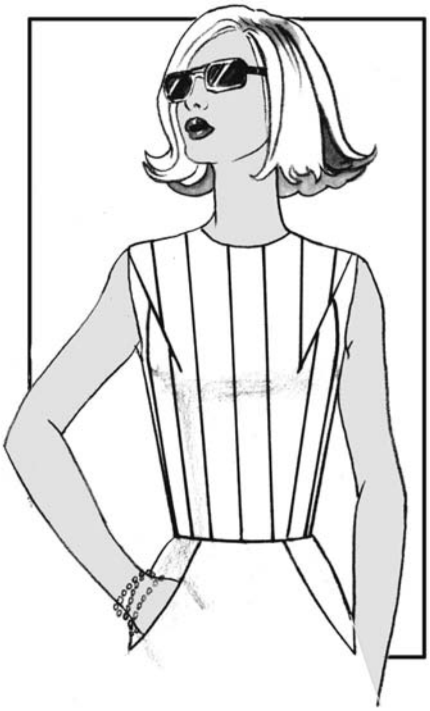
Figure 3 New Pattern Shape

- Remove pattern, draw legs to bust, center dart point 5/8 inch from bust point.
- Draw new dart legs.

Figure 3


FRONT
5/8 "
Bust point
Cut on fold

Shoulder-Tip Dart



Design Analysis: Design 8

Pattern Plot and Manipulation

Figure 1

- Mark shoulder-tip dart location (C) and trace pattern from A to C (shaded area).

Figure 1

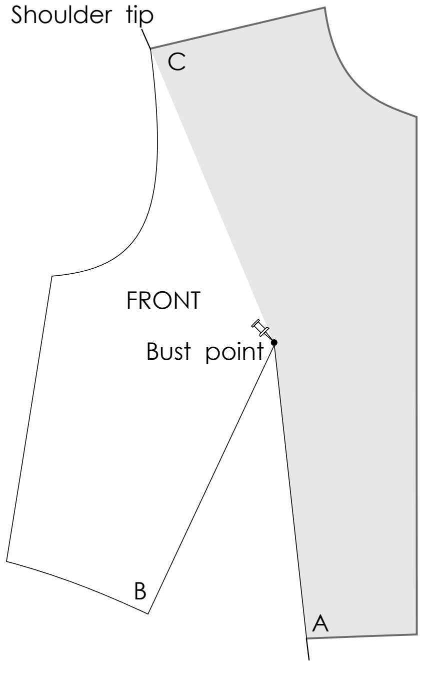

Shoulder tip
C
FRONT
Bust point
B
A

Figure 2

- Pivot the pattern until dart leg B touches point A on paper (closes waist dart and opens space for shoulder-tip dart).
- Trace remaining pattern.

Figure 2

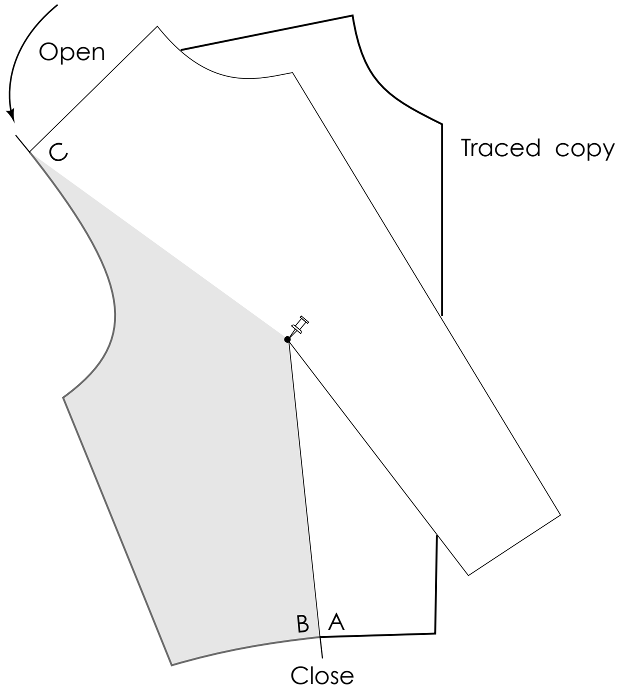
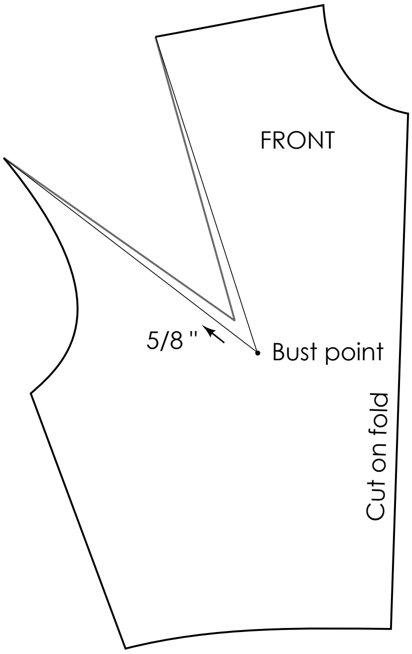

Open
C
Traced copy
B
A
Close

Figure 3 New Pattern Shape

- Remove pattern, draw dart legs to bust, center dart point 5/8 inch from bust point.
- Draw new dart legs.

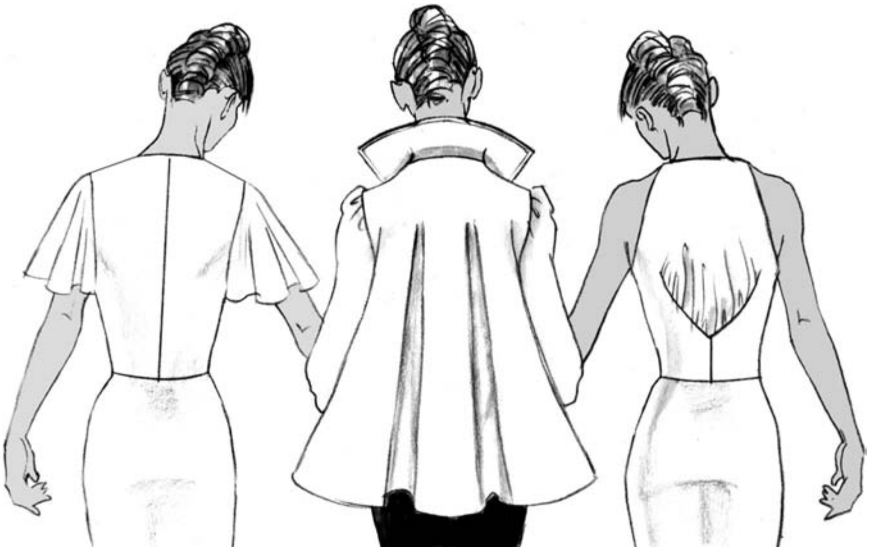
Figure 3


FRONT
5/8 "
Bust point
Cut on fold

THE SHOULDER DART

The shoulder dart should be relocated when it interferes with a design detail. The shoulder dart, like the bust dart, can be transferred to any location around the pattern's outline. It can be used creatively by changing its shape or by transferring it to the waist dart when additional flare is desired at the waist or hemline.

The most common dart locations are illustrated. If preferred, other locations can be used.



The Multidispersion Working Pattern for Use When Shoulder Dart Not Required

Pattern Plot and Manipulation

Figures 1a and b

- Trace back pattern, including the HBL line.
- Draw slash line from dart point and mid-neck to the guideline. Draw facing (Figure 1a).
- Trace and cut facing from paper (Figure 1b).

Figure 2

- Cut slash lines from neck, shoulder dart, and mid-armhole to, not through, pivotal point.
- Spread sections equally.
- Place on paper. Secure.
- Trace and blend neck, shoulder, and armholes.
- Mark ease control notches as shown. (Mark notches on front shoulder.)

Figure 1 a

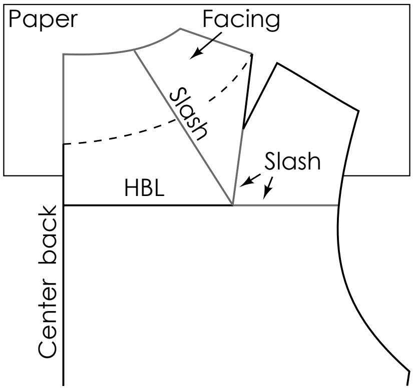

Paper
Facing
Slash
Slash
HBL
Center back

Figure 1b

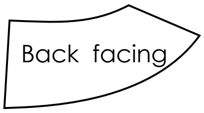
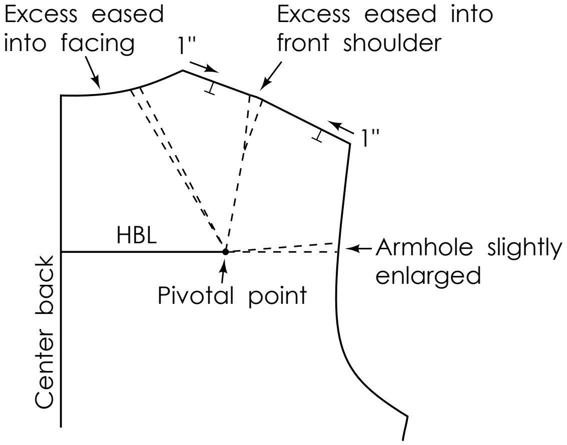

Back facing

Figure 2


Excess eased into facing
1"
Excess eased into front shoulder
1"
HBL
Armhole slightly enlarged
Pivotal point
Center back

THE BACK NECK DART

Pattern Plot and Manipulation

Use slash or pivotal method.

Figure 1
- Trace back pattern and all markings.
- Draw slash lines from mid-neck on a desired angle to the HBL line and to the dart leg of the shoulder.
- Crossmark 3 inches down on line from the neck.

Figure 2
- Cut slash lines from neck and dart leg at shoulder to pivotal point.
- Pivot pattern to close shoulder dart. (The shoulder will jog at the dart closing.) Tape to secure.

Figure 3
- Trace pattern and draw a straight line from neck to shoulder tip.
- Draw dart legs to the center point of the crossmark.

Figure 1

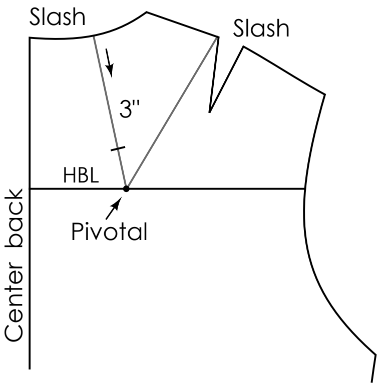

Slash
Slash
3"
HBL
Pivotal
Center back

Figure 2

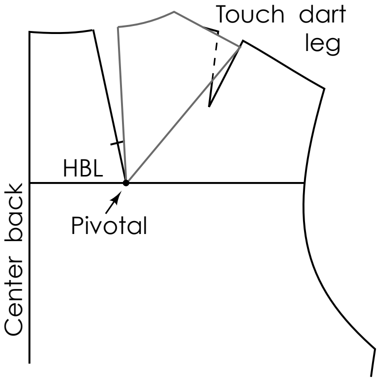
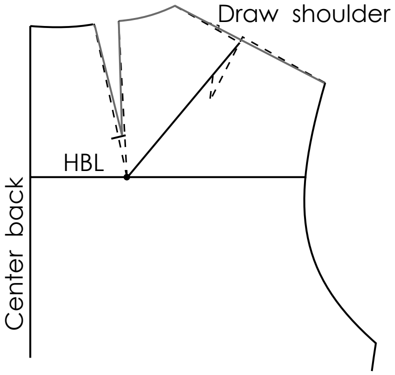

Touch dart leg
HBL
Pivotal
Center back

Figure 3


Draw shoulder
HBL
Center back

Excess Transferred to Armhole

Pattern Plot and Manipulation

Figure 1
- Trace back pattern and all markings.
- Draw line from dart point to HBL guideline.
- Slash from HBL at armhole to pivotal point and from dart point to, not through, pivotal point.

Figure 2
- Close shoulder dart. Tape retrace and blend.

Figure 3 Another Version
- Extend a line past the open dart to equal the front shoulder measurement.
- Redraw a line from the new shoulder to blend with the armhole.

Figure 1

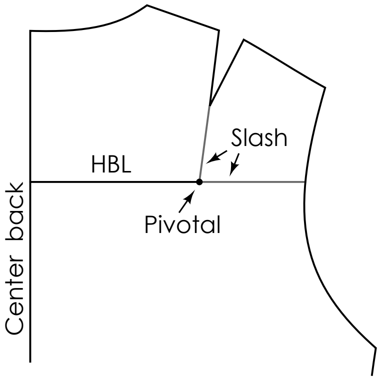

Slash
HBL
Pivotal
Center back

Figure 2

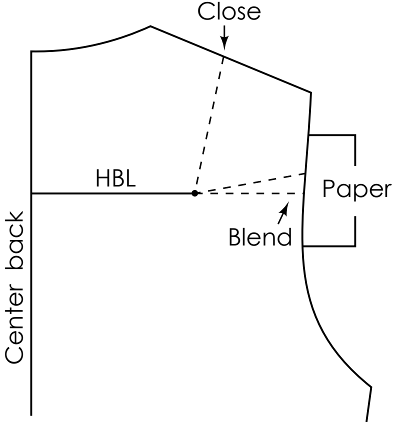
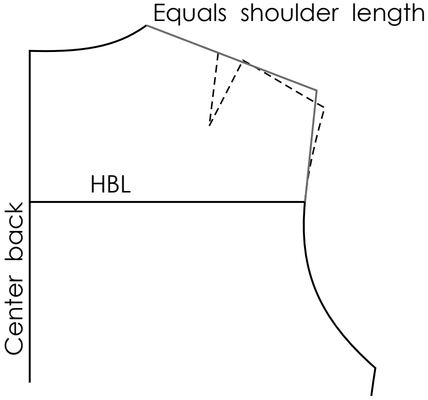

Close
HBL
Paper
Blend
Center back

Figure 3

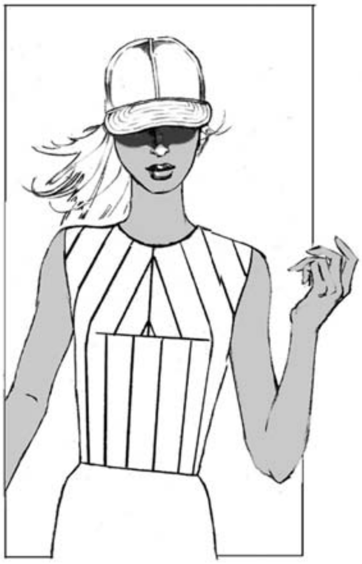

Equals shoulder length
HBL
Center back

SELF-EVALUATION TEST

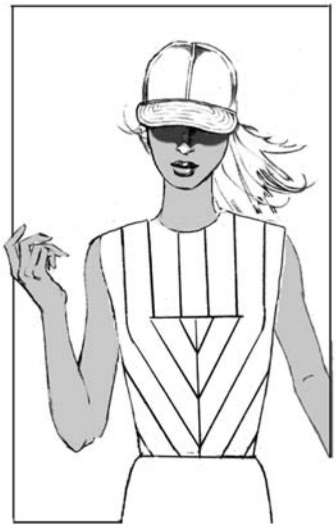
1. Develop patterns by transferring the waist dart to the following locations, using the patternmaking techniques indicated. After each pattern is completed, fold darts using the methods described in Figure 4 in the Dart Excess Folded section earlier in this chapter.

Slash-Spread Technique		**Pivotal-Transfer Technique**	
Location	*Corresponding Pattern Shapes for Comparison*	*Location*	*Corresponding Pattern Shapes for Comparison*
Side dart	Figure 3 Side Dart section	Mid-shoulder	Figure 3 Mid–Shoulder Dart section
Mid-armhole	Figure 3 Midhole Arm Dart section	Center front neck	Figure 3 Center Front Neck Dart section
Shoulder-tip	Figure 3 Shoulder–Tip Dart section	French dart	Figure 3 French Dart section

2. The pattern for Design 1 has been developed (Figure 1). Will the same pattern create Design 2? If so, in what way? Cut in a stripe fabric for proof.

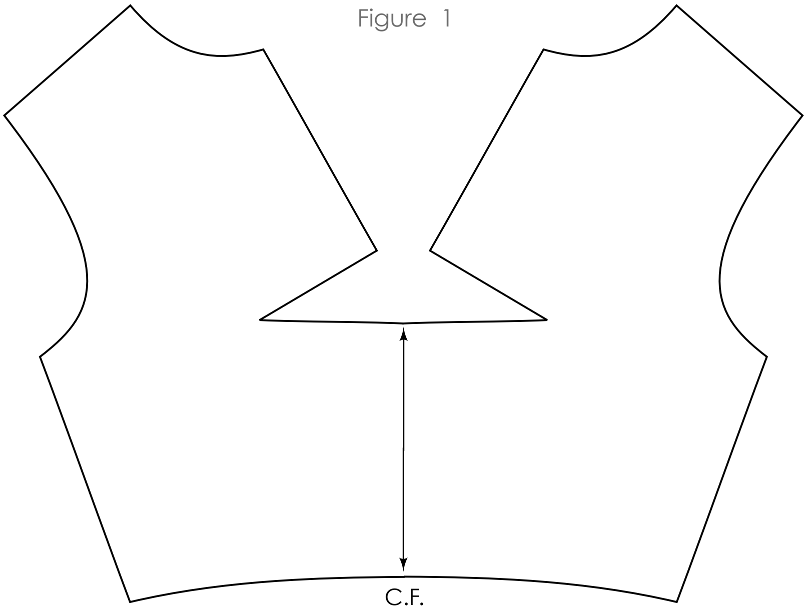


Design 1

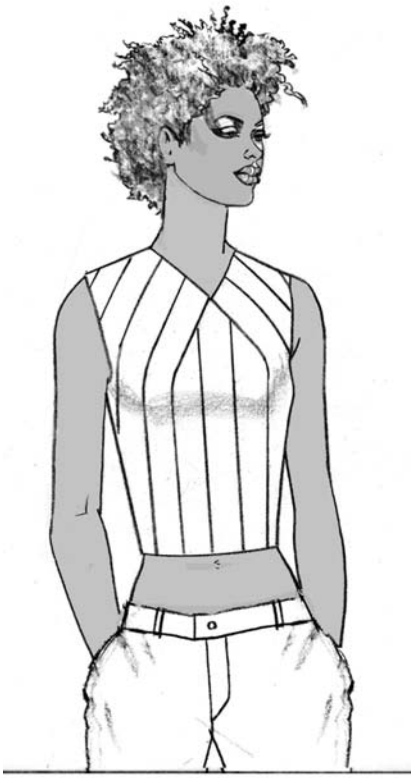


Design 2

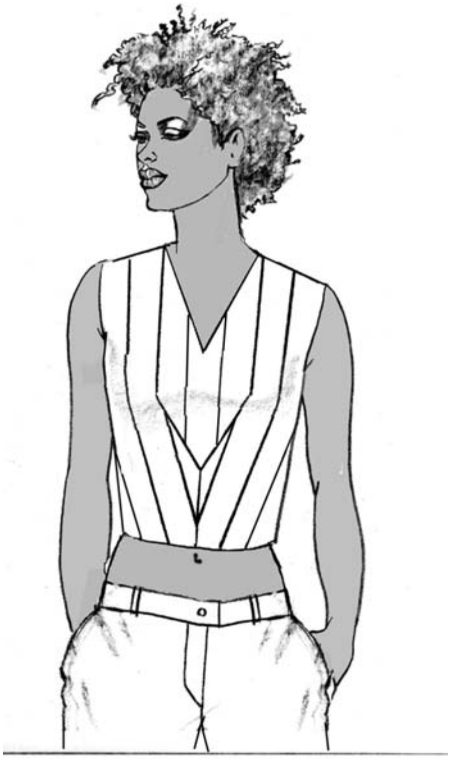
Figure 1



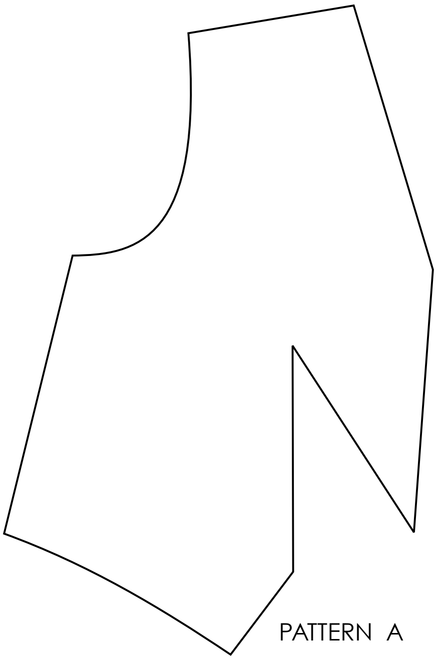
3. The patterns for Designs 3 and 4 are illustrated and labeled A and B. Match the design with the correct pattern shape. Write either A or B (below each sketch). Cut each design in stripe fabric for proof.



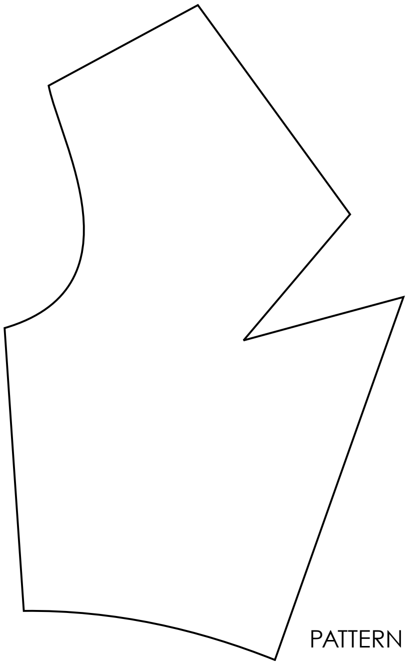
Design 3



Design 4



PATTERN A



PATTERN B

Consistency of Dart Angle

To prove that the angle of the dart legs remains constant without regard to its location around the pattern's outline, stack the following patterns in the sequence given: the shoulder dart (longest dart—bold line), the waist dart (lined pattern), and the center front bust dart (shortest dart—broken line). Place a push pin through the bust points of all three patterns and align the dart legs. They all match and have the same degree of angle, from the shortest to the longest dart. The spaces between the ends of the dart legs of each pattern vary. The difference is directly related to the distance from the bust point (or any pivotal point) to the edge of the pattern where the dart is located. The closer a dart is to a pivotal point, the narrower the space between dart legs; the farther the distance, the wider the space between dart legs (Figure 1).

Figure 1

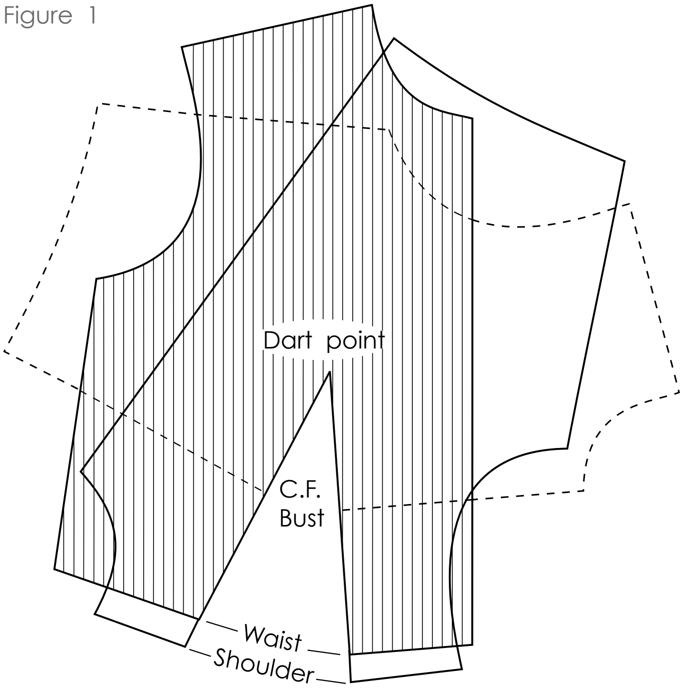
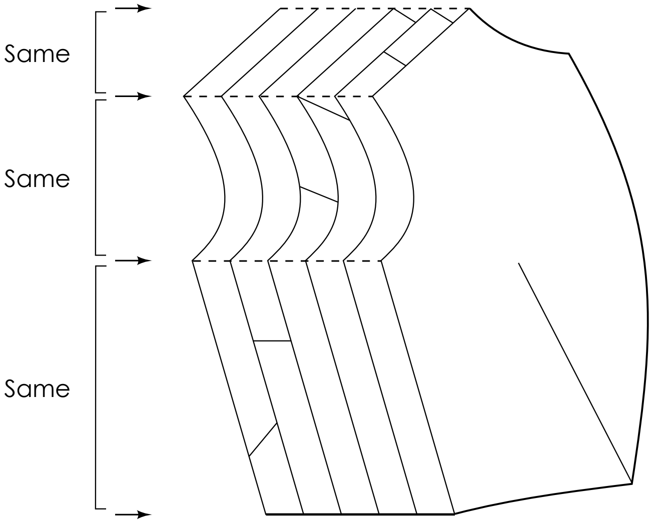


Figure 2



Proof of Principle #1

In the preceding patternmaking exercises, the dart excess was transferred to many different locations around the outline of the front bodice pattern. The shapes of these patterns vary from the original working pattern. When the dart legs are closed and taped, the patterns are the original size and shape. This can be proven by using the patterns previously developed. Bring the dart legs together, cupping the pattern, and tape securely. Stack the patterns, aligning the center fronts. Observe that the patterns coincide exactly (Figure 2).

TWO-DART SERIES—SLASH-SPREAD TECHNIQUE

A two-dart working pattern (waist and side dart) will be developed for the projects that follow.

The two-dart pattern is used in industry more often than a one-dart pattern. There are advantages to dividing the dart excess into more than one location other than the creative aspects of the design.

- Pattern pieces fit the marker more economically.
- The natural bias of the fabric at side seam is less severe.
- Fit is improved by releasing ease around the bust mound from two dart points rather than from one.

The dart points of a two-dart pattern generally end 3/4 to 1 inch from the bust point. However, the side dart variance depends on the size of the bust cup—for example, A cup, 3/4 inch; B cup, 1 inch (standard measurement); C cup, 1 1/2 inches; D cup and larger, 1 3/4 inches from bust point.

The waist and side dart pattern should be completed on tag board paper as a seamed and seamless pattern. It will be used as a base for other designs and foundations.

To test fit, trace the seamless front and back patterns on muslin. Add seams, mark notches, and punch holes (working patterns remain seamless).

In the previous dart manipulation series, only one slash line to bust point was required to transfer the dart to other locations. In this series, transferring part of the dart excess requires two slash lines to bust point—one for the new dart location and the other from dart point of the waist dart to bust point. The slashes create a hinge that permits the manipulation of the dart excess.

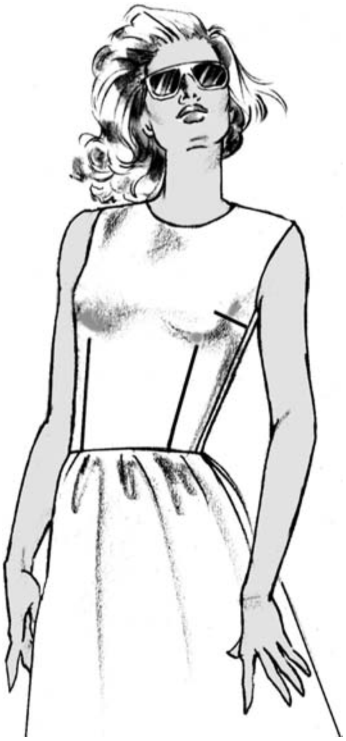
Save patterns for practice of gathers, tuck-darts, and flares.

Waist and Side Dart

Design Analysis: Design 1

Waist dart shares excess with the side dart.

The pattern can be used as a seamless working pattern.



Pattern Plot and Manipulation

Figure 1

- Trace front pattern. Crossmark side dart location. Draw slash line to bust point that is level with center front bust section.
- Label dart legs A and B and side waist X.
- Cut slash line to, not through, bust point (hinge).

Figure 1

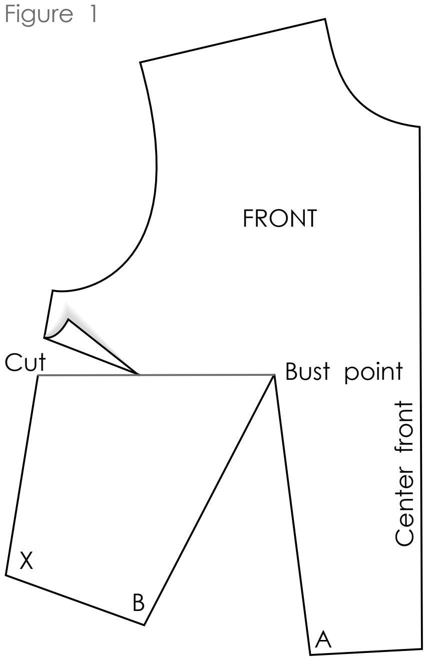


Figure 2

- Draw a square line on paper.
- Place center front on square line, with center front waist touching corner, as shown. Secure.
- Close waist dart until point X touches the square line. (Broken line is original pattern.)
- Trace and mark bust point.

Figure 2

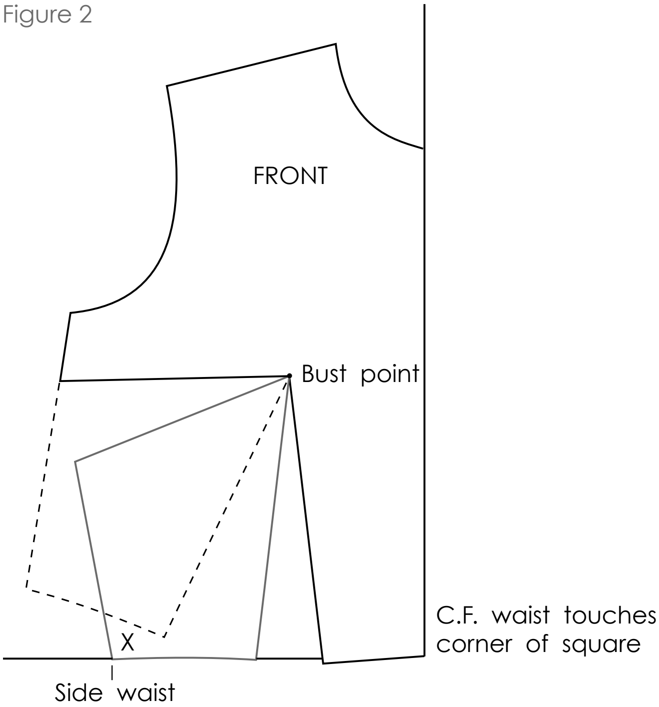

FRONT
Bust point
X
C.F. waist touches corner of square
Side waist

Figure 3

- Center the point of the waist dart 3/4 inch from bust and 1 1/4 inches from bust point of the side dart.
- Redraw dart legs to dart points.

Figure 3

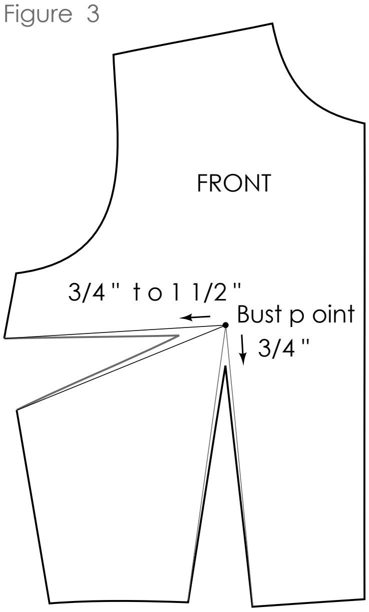

FRONT
3/4" to 1 1/2"
Bust point
3/4"

Figure 4

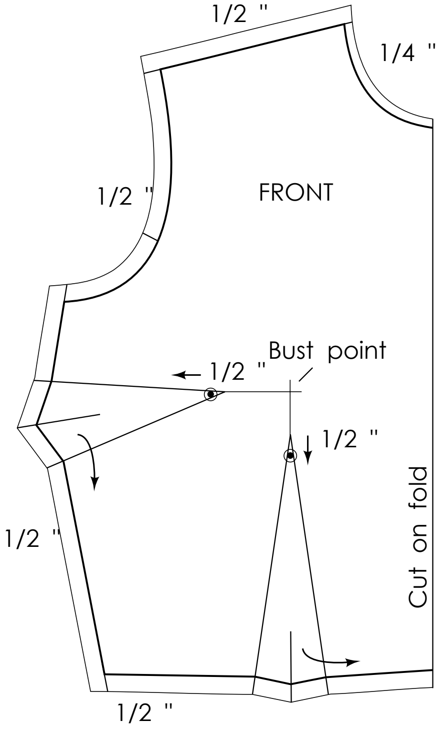
Folding Darts: Side Dart:

- The center fold lies toward the waist.

Waist Dart:

- The fold lies toward the center of the front and back patterns.
- To complete the darts (Figures 2a, b, and c for a guide). (As the dart is folded, cup the pattern and trace across the dart at the side and waist seams.)
- Add seams as shown.

Figure 4


1/2"
1/4"
1/2"
FRONT
Bust point
1/2"
1/2"
1/2"
Cut on fold
1/2"

- Punch and circles are placed 1/2 inch from the dart point.

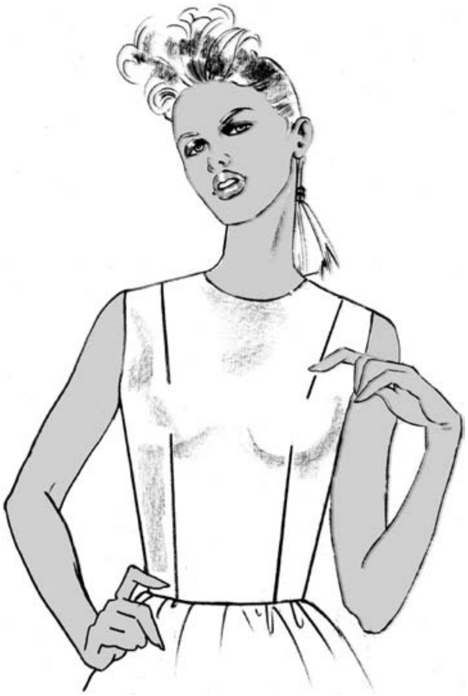
Test Fit:

- A full front is cut on the fold, for half of muslin, add a 1-inch extension to the front and back patterns (back not illustrated).

Mid-Shoulder and Waist Dart

Design Analysis: Design 2

Design 2, the shoulder dart replaces the side dart. The pattern can be used as a seamless working pattern.



Pattern Plot and Manipulation

Figure 1

- Trace pattern; mark bust point and mid-shoulder.
- Draw a slash line to bust point from mid-shoulder and from dart point of the side dart to bust point.

Figure 1

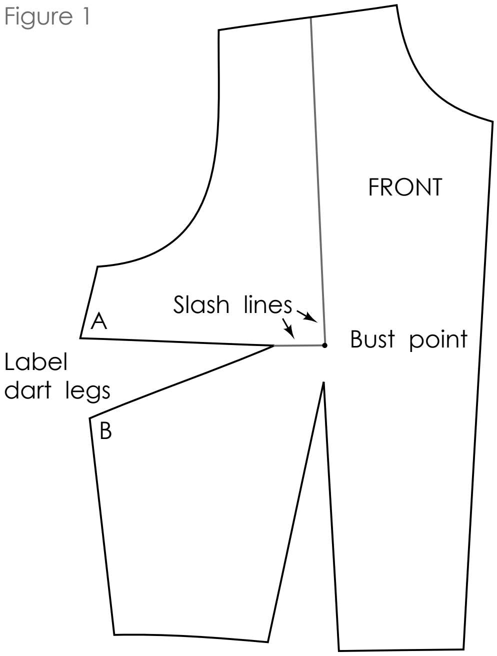

FRONT
Slash lines
A
Label dart legs
B
Bust point

Figure 2

- Cut slash lines to, not through, bust point from shoulder and side dart (hinge).

Figure 2

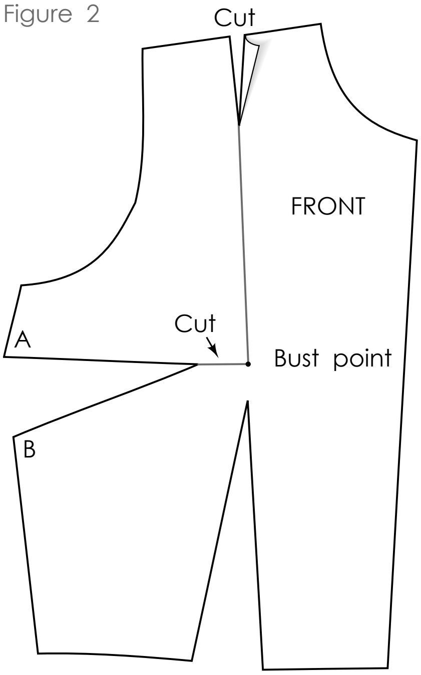
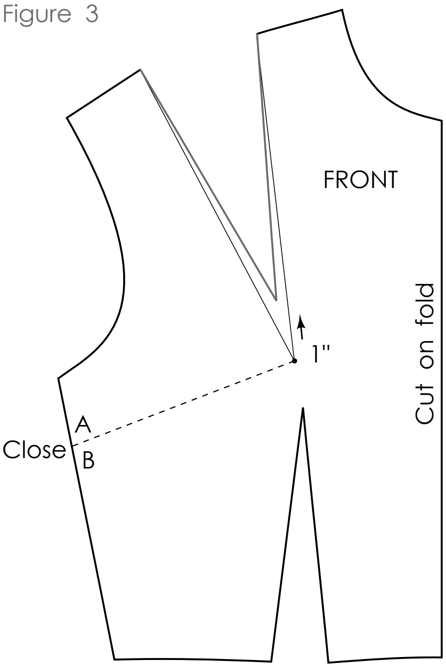

Cut
FRONT
A
Cut
Bust point
B

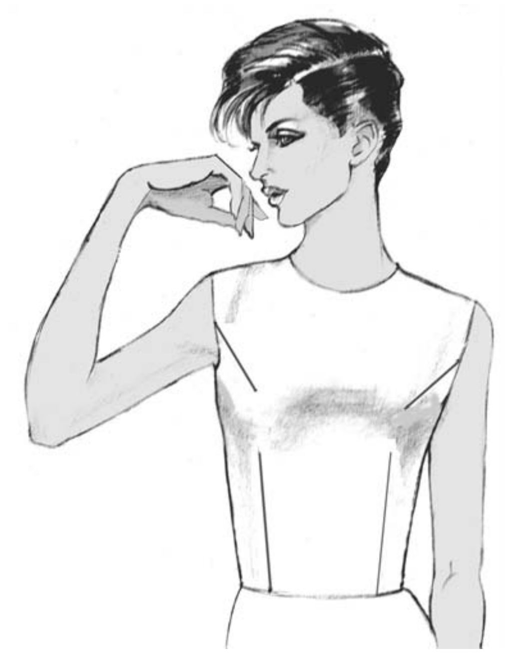
Figure 3 New Pattern Shape

- Close dart legs A and B. Tape.
- Trace the pattern.
- Center the dart point 1 inch from bust point.
- Draw dart legs to new dart point.

Figure 3


FRONT
1"
Cut on fold
A
Close
B

Mid-Armhole and Waist Dart



Design Analysis: Design 3

Pattern Plot and Manipulation

Figure 1

- Trace pattern. Mark bust point and mid-armhole. Cut from paper.
- Draw a slash line to bust point from mid-armhole and from dart point of the side dart to bust point.

Figure 2

- Cut slash lines to, not through, bust point.
- Bring dart legs A and B together. Tape.

Figure 2

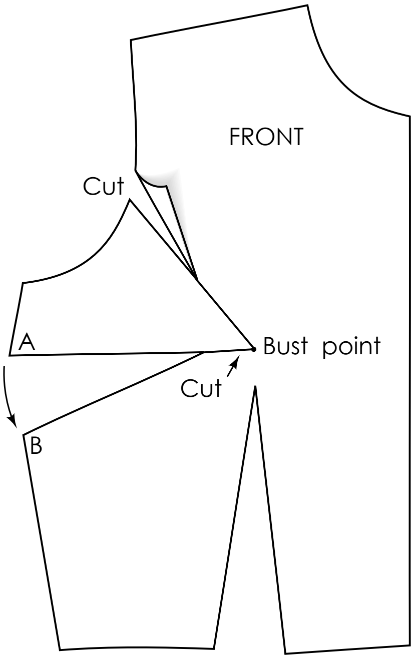

FRONT
Cut
A
Bust point
Cut
B

Figure 3 New Pattern Shape

- Place on paper. Trace.
- Center dart point 1 inch from bust point.
- Redraw dart legs to dart point.

Figure 1

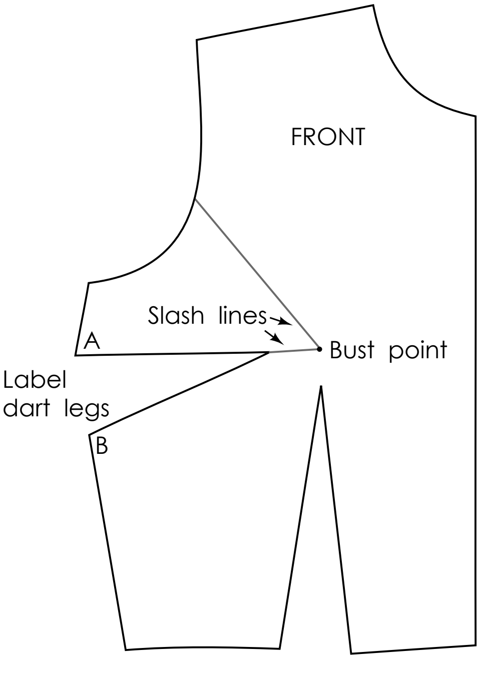
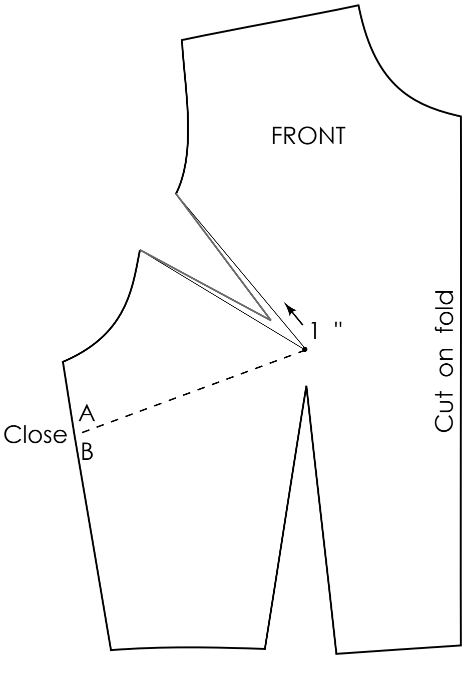
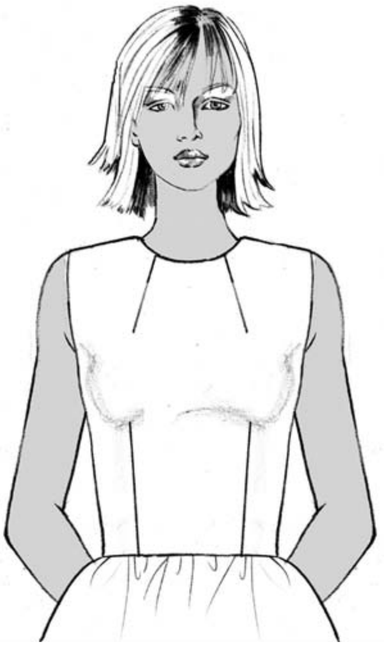

FRONT
Slash lines
A
Bust point
Label
dart legs
B

Figure 3


FRONT
1 "
Cut on fold
A
Close
B

TWO-DART SERIES—PIVOTAL-TRANSFER TECHNIQUE

Mid-Neck and Waist Dart



Design Analysis: Design 4

Pattern Plot and Manipulation

Figure 1

- Place pattern on paper with push pin through the bust point. Mark mid-neck. Label C.
- Mark B and trace to point C (blue line, shaded area).

Figure 1

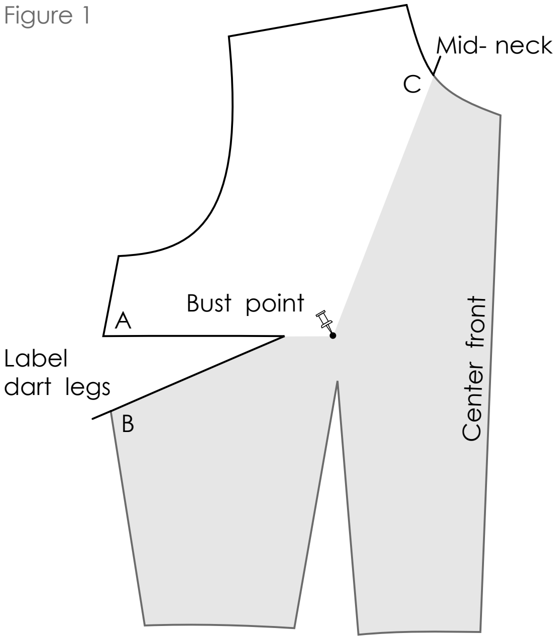

Mid- neck
C
Bust point
A
Label
dart legs
B
Center front

Figure 2

- Pivot pattern downward until dart leg A touches B on paper. (Pattern will overlap traced section.)
- Mark point C at mid-neck and trace to dart leg A.

Figure 2

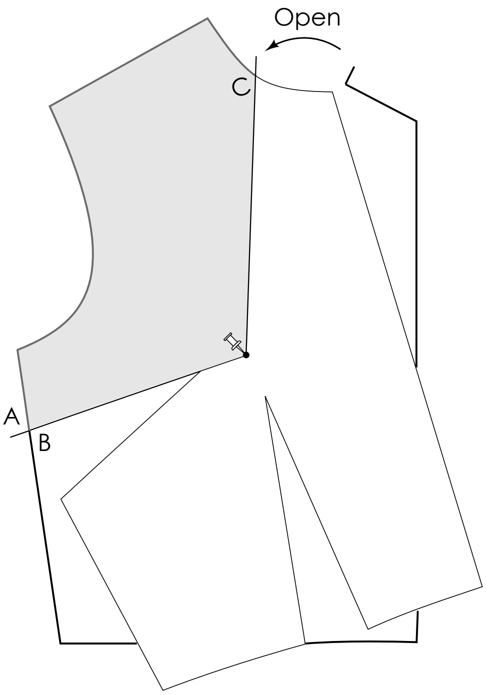
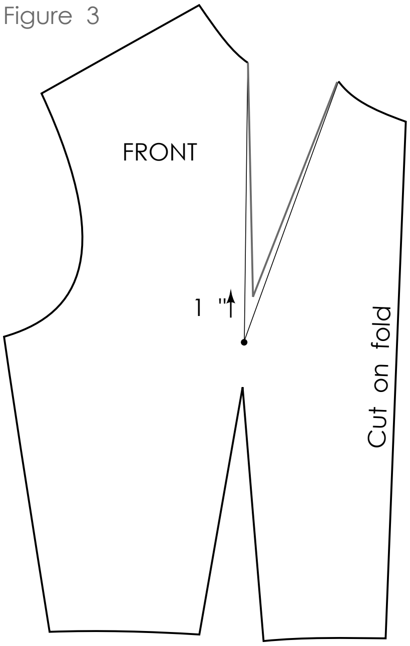


Figure 3 New Pattern Shape

- Remove pattern and draw dart to bust point.
- Center dart point 1 inch from bust point.
- Redraw dart legs to dart point.

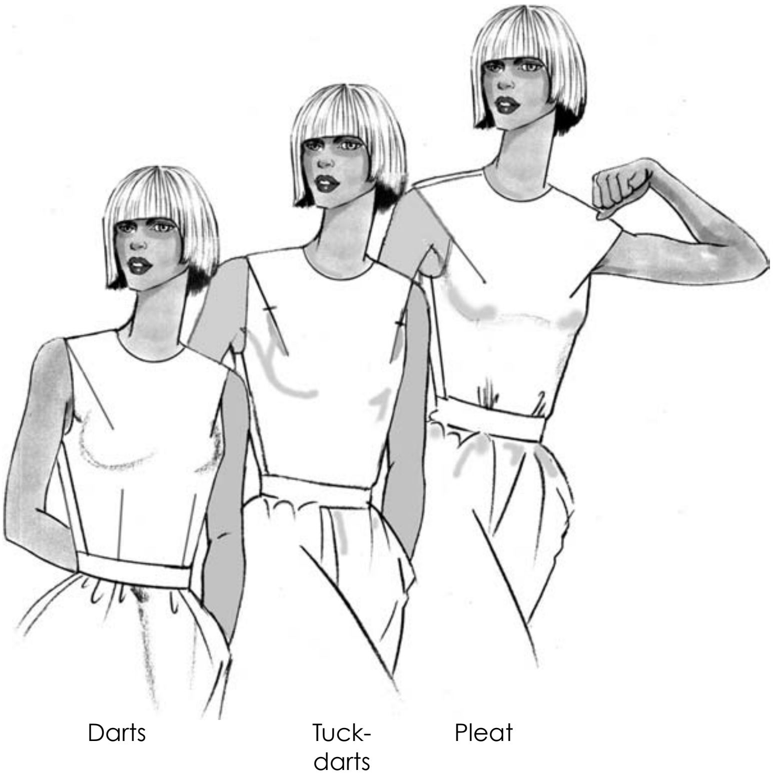
Figure 3


FRONT
1 "
Cut on fold

Shoulder-Tip and Waist Dart

Design Analysis: Design 5

Design 5, the side dart is transfered to shoulder tip, as a dart. The tuck-dart and pleat are thought problems.


Darts
Tuck-darts
Pleat

Pattern Plot and Manipulation

Figure 1

- Place pattern on paper with push pin through bust point. Mark shoulder tip C.
- Mark at dart leg B and trace to point C.

Figure 1

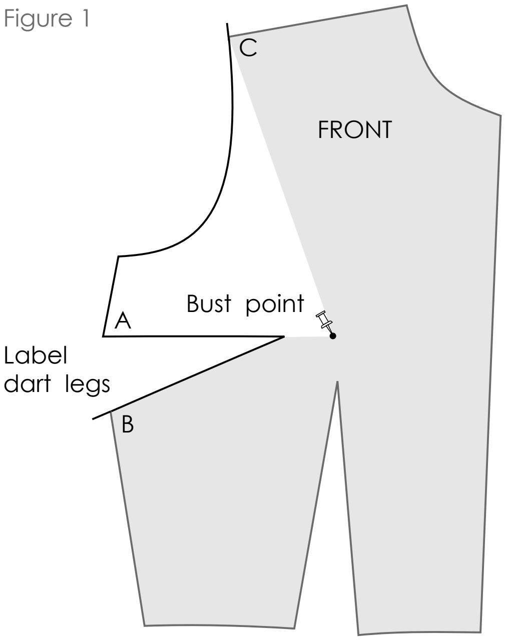

C
FRONT
Bust point
A
Label dart legs
B

Figure 2

- Pivot pattern downward until dart leg A touches B on paper. (Pattern will overlap traced section.)
- Mark point C at shoulder tip and trace to dart leg A.

Figure 2

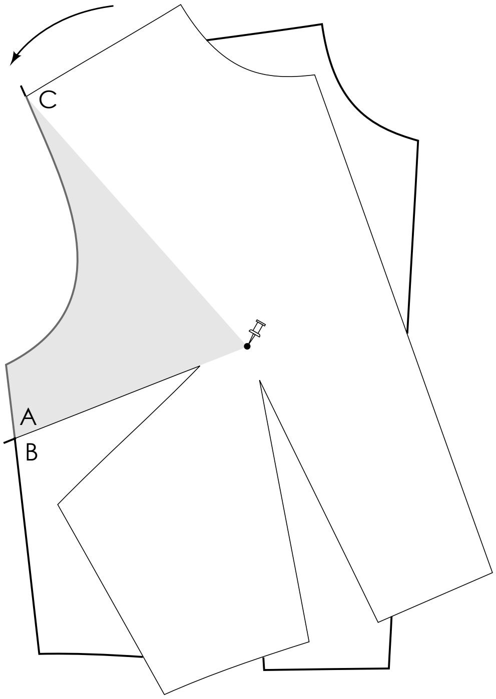
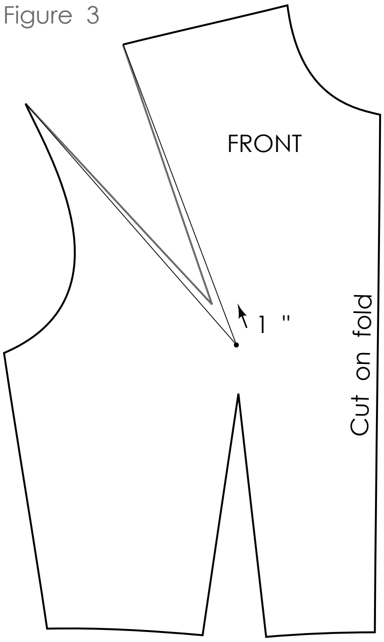


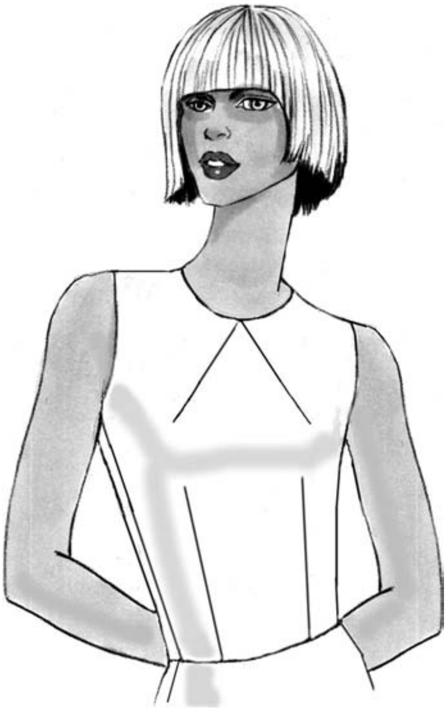
Figure 3 New Pattern Shape

- Remove pattern; draw dart legs to bust point.
- Center the dart point 1 inch from bust and re-draw legs.

Figure 3


FRONT
1 "
Cut on fold

Center Front Neck and Waist Dart



Design Analysis: Design 6

Pattern Plot and Manipulation

Figure 1

- Place pattern on paper with push pin through bust point. Mark center front neck C.
- Mark at dart leg B and trace to point C.

Figure 1

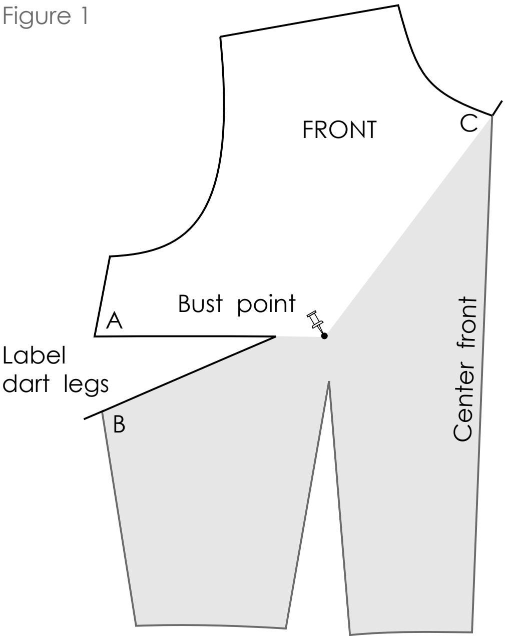

FRONT
C
Bust point
A
Label
dart legs
B
Center front

Figure 2

- Pivot pattern downward until dart leg A touches B on paper. (Pattern will overlap traced pattern.)
- Mark point C at neck and trace to dart leg A.

Figure 2

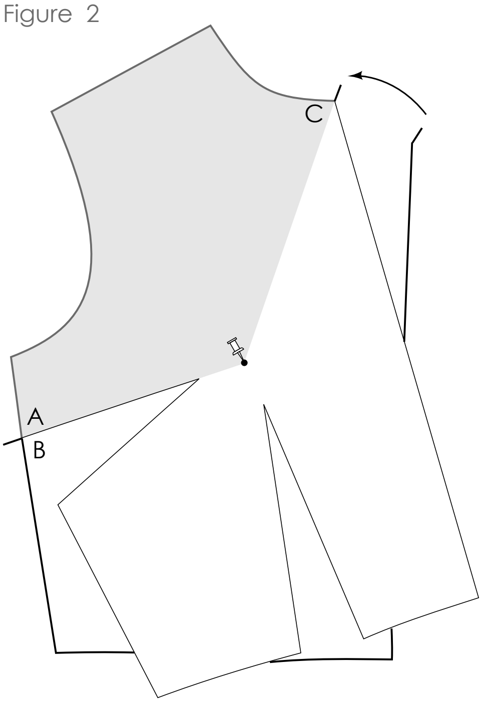
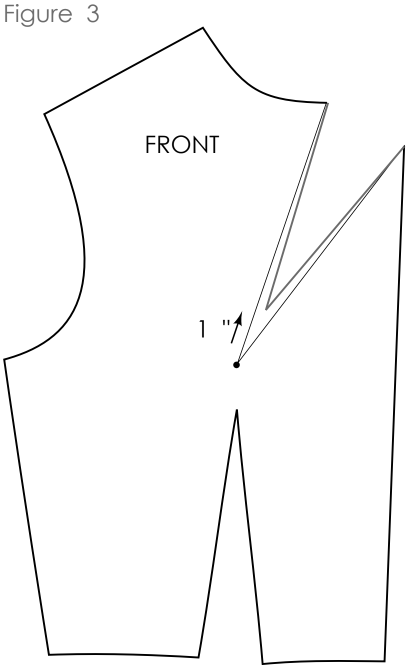


Figure 3 New Pattern Shape

- Remove pattern; draw dart legs to bust point.
- Center dart point 1 inch from bust and redraw legs to dart point.

Figure 3



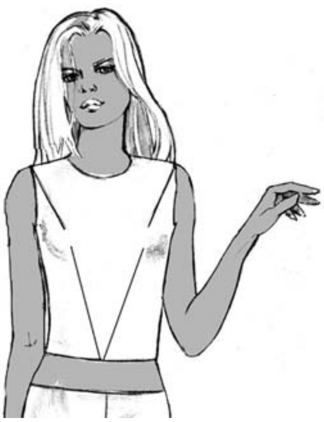
SELF-EVALUATION TEST

1. Develop patterns for the following dart locations using the patternmaking techniques indicated. After patterns have been developed, fold in darts using the methods discussed previously.

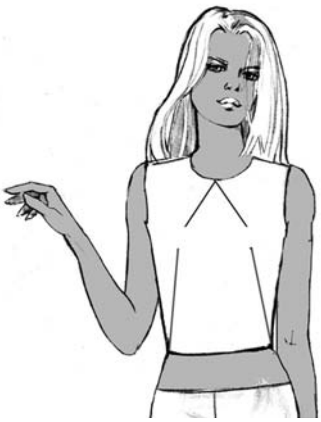
Slash-Spread Technique		**Pivotal-Transfer Technique**	
Location	*Corresponding Pattern Shapes for Comparison*	*Location*	*Corresponding Pattern Shapes for Comparison*
Mid-neck and waist	Figure 3 three pages earlier	Side dart and waist	Figure 3 six pages earlier
Shoulder-tip and waist	Figure 3 two pages earlier	Mid-shoulder and waist	Figure 3 five pages earlier
Center front neck and waist	Figure 3 previous page	Mid-armhole and waist	Figure 3 four pages earlier

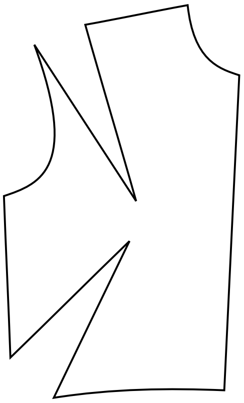
2. Designs 1 and 2 differ from the two-dart series in which the waist dart remains and the side dart changes location. How do they differ? Analyze the two designs. Compare with the working pattern. Four pattern shapes are illustrated. Two patterns relate to the designs. Choose the correct pattern shape for each design.
3. Develop pattern shapes for Designs 1 and 2. Use the slash-spread technique and the pivotal-transfer method.

Design 1

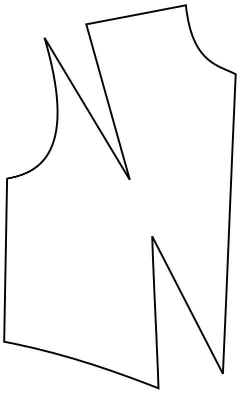


Design 2

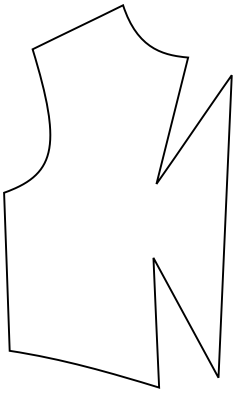




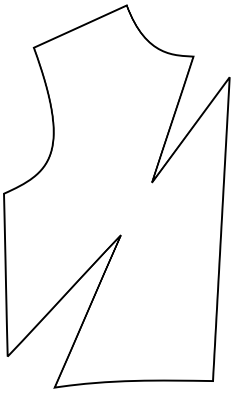
PATTERN A



PATTERN B



PATTERN C



PATTERN D

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Special Information

Set form to desired height and measure the following:

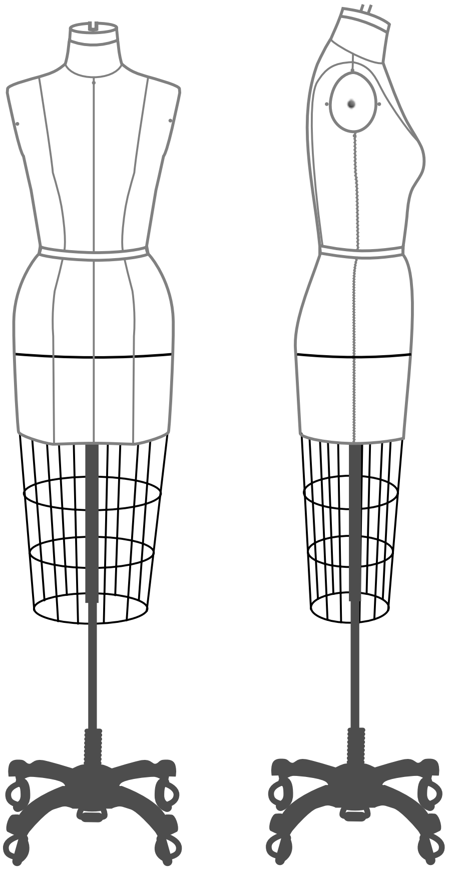
C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____
2. Waist: _____
3. Abdomen: _____
4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
   B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
    Front = 1" (2 darts 1/2 to 5/8")
    Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

*Measuring the Arm

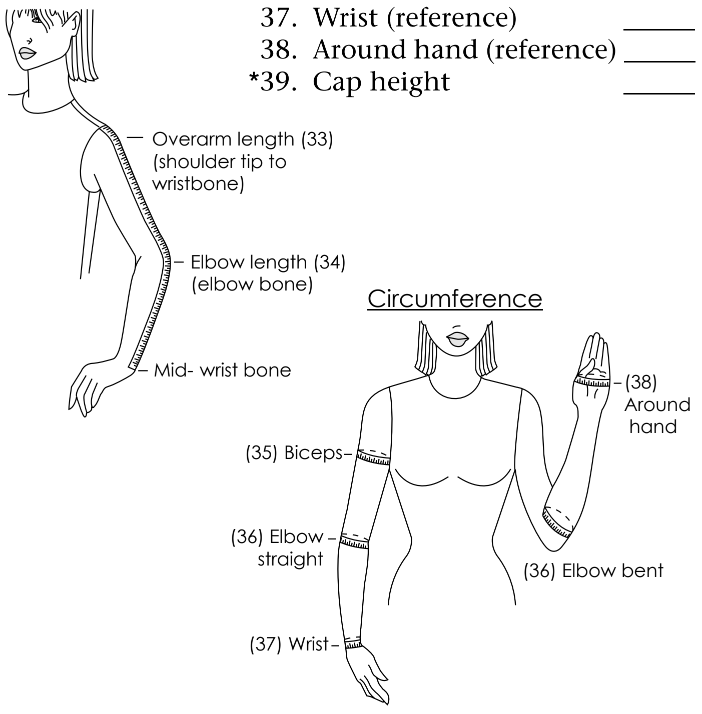
Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____


Length
Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone
Circumference
(38) Around hand
(35) Biceps
(36) Elbow straight
(36) Elbow bent
(37) Wrist

ANSWERS TO SELF-EVALUATION TESTS

Pattern B is the pattern for Design 1. Pattern D is the pattern for Design 2.

Designing with Darts

From Chapter 5 of *Patternmaking for Fashion Design,* 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

Designing with Darts

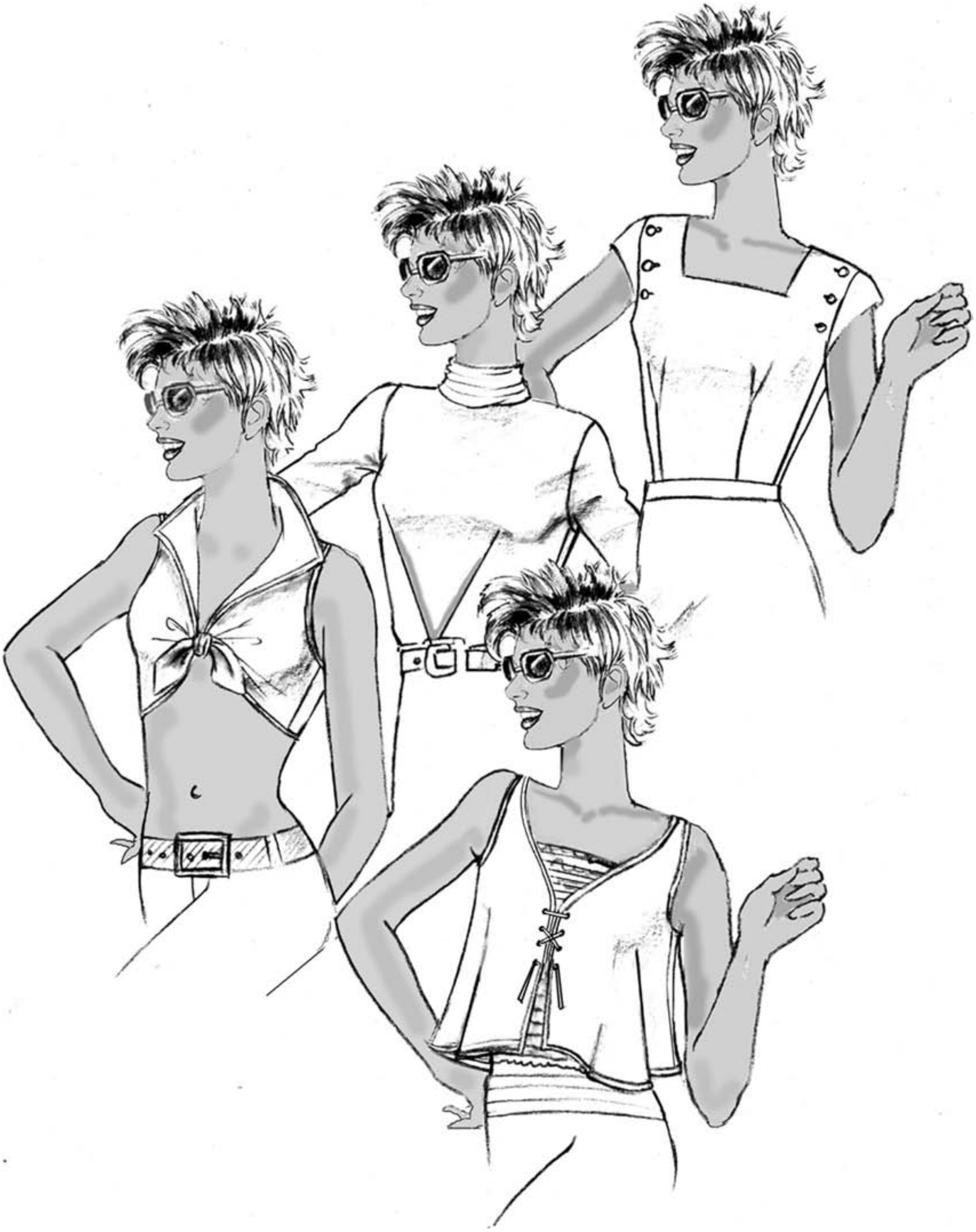
(Tuck-Darts, Pleats, Flares, and Gathers)

INTRODUCTION
TUCK-DART
PLEAT
FLARE
GATHERS
    Slash-Spread Technique
    Pivotal-Transfer Technique
DART CLUSTERS AND DART EQUIVALENTS
    Waist Cluster
    Dart Cluster
    Tuck-Dart Cluster
    Pleat Cluster
    Shoulder Cluster
    Center Front Bust Cluster
GRADUATED AND RADIATING DARTS
    Graduated Darts
    Radiating Darts
PARALLEL DARTS
    Parallel French Darts
    Parallel Darts at Neck
    Parallel Darts—Cape Effect
    Parallel Dart Design Variations
ASYMMETRIC DARTS
    Asymmetric Radiating Darts
    Asymmetric Curved Darts
    Asymmetric Dart Variations
INTERSECTING DARTS
    Intersecting Dart to Waist
    Intersecting Dart with Gathers
    Intersecting Dart Design Variations

INTRODUCTION

The dart is one of the most flexible and creative parts of the pattern. The space (excess) between the dart legs can be used in a variety of creative ways, limited only by the imagination of the designer. Dart excess used as design is referred to as *dart equivalent*. Dart equivalents are illustrated as tuck-darts, pleats, flares, and gathers. Dart equivalents replace the dart as control and will always be directed to the pivotal point of a pattern (such as bust point). The difference between a dart and a dart equivalent is the manner in which each is marked (and subsequently stitched). Darts are stitched end to end, tuck-darts are partially stitched, pleats are folded, stitched across fold, and fullness is spread and gathered along the stitchline or flare when not stitched.

Gathers are illustrated separately using the slash-spread and pivotal-transfer techniques. Advanced design using darts and dart equivalents follows. A sample of each dart equivalent should be cut in fabric. It is important to view the different effects created by varying the dart.



TUCK-DART

Figure 1a

- A tuck-dart is a partially stitched, inverted dart marked by a punch hole and circle along the centerfold and 1/8 inch inside the stitchline, 1/2 inch below the finished length to cover the damage.

Figure 1a

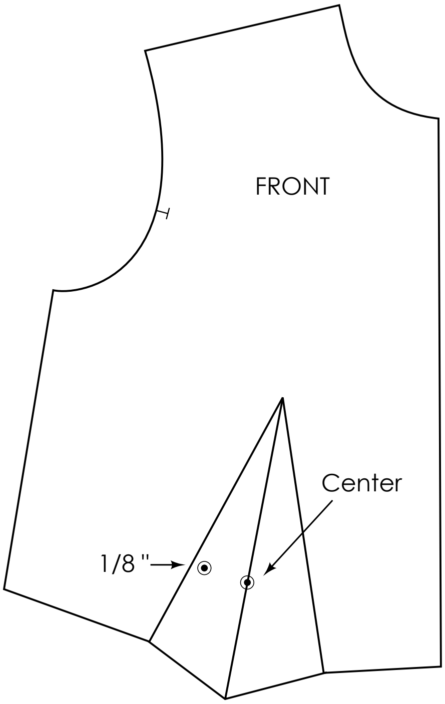
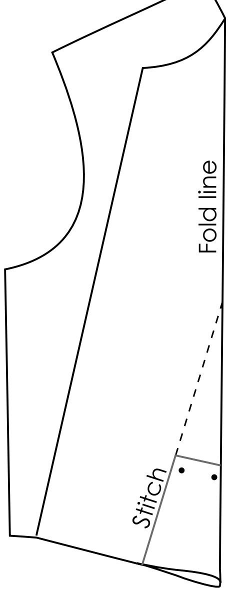


Figure 1b

- The underside of the dart illustrates the stitched area. Note that stitching is 1/2 inch beyond the punch holes.

Figure 1b

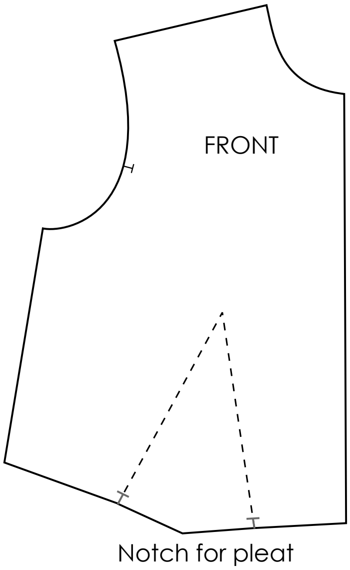


PLEAT

Figure 2

- A pleat is an unstitched, folded dart held securely along the joining seamline. It is developed as a dart on the pattern but does not include punch hole and circle for dart point. Dart legs are notched. (Broken lines indicate the original dart legs.)

Figure 2

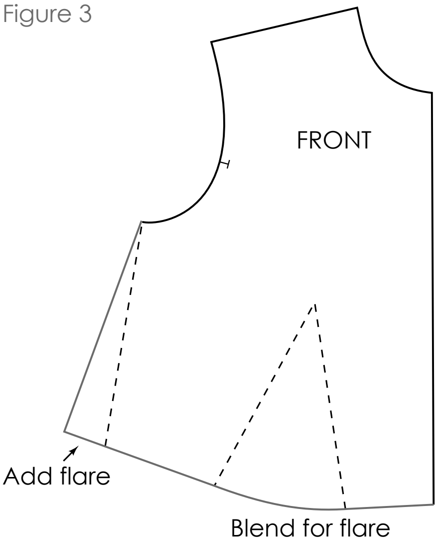


FLARE

Figure 3

- A flare is an open, unstitched dart. The open dart space is blended across the bottom. Punch holes, circles, and notches are not needed. (Broken lines indicate original dart legs.)
- Flare should be added to the side seam.

Figure 3



GATHERS

Gathers are illustrated using the slash-spread and pivotal-transfer techniques. Gathers change the look of the basic garment but do not affect the fit. The slash-spread technique illustrates *half* of the dart excess used for gathers, and the pivotal-transfer technique illustrates *all* of the dart excess transferred for gathers.

Slash-Spread Technique

Figure 1 *Gathers at Shoulder*

- Trace the front pattern. Mark mid-shoulder. Label dart legs A and B.
- Draw slash lines 1 inch out from each side of the mid-shoulder, ending at bust point (pivotal point).

Figure 1

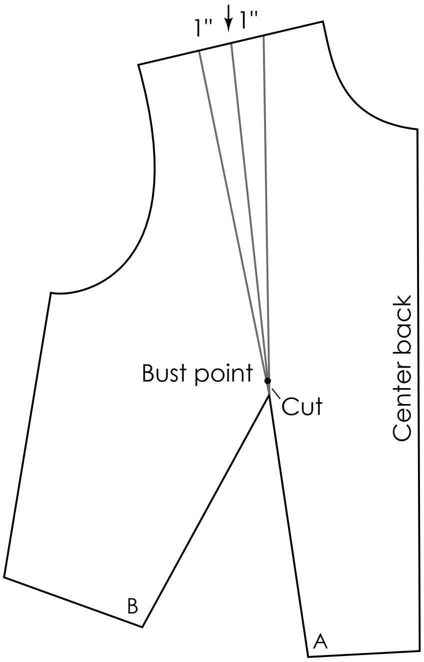


Figure 3

- Mark back shoulder notches same distance in from shoulder tip and shoulder at neck.
- Add 1/2 inch seams and 1 inch at center back.
- Cut and stitch for a test fit.

Figure 2

- Cut slash lines to, not through, bust point.
- Place on pattern paper and bring dart leg B halfway to A. Secure.
- Spread slashed sections equally and secure.
- Trace the outline of the pattern.
- Place notch marks 1/2 inch in from shoulder and neck for gather control.
- Draw blending line along the shoulder, touching center sections of the slashed parts.

Figure 2

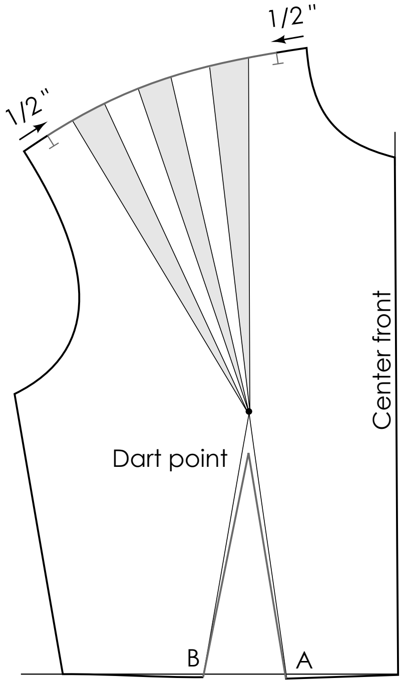
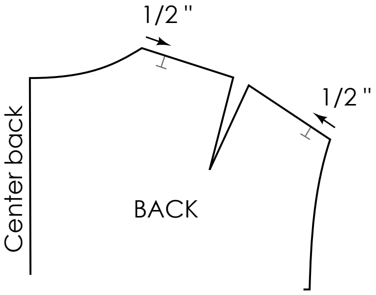


Figure 3



Pivotal-Transfer Technique

Figure 1

- Place the pattern on paper and a pushpin at bust point.
- Mark mid-shoulder and 1 inch out from each side of the mark. Label 1, 2, 3 and dart legs A, B.
- Divide waist dart into thirds. Label 4, 5, and 6.
- Trace from A to shoulder mark #1 and crossmark.

Figure 1

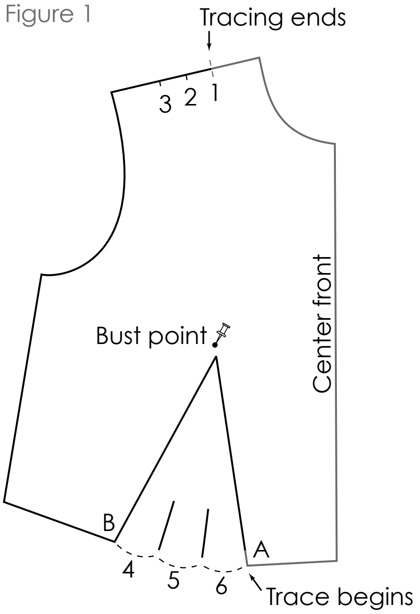

Tracing ends
3
2
1
Bust point
Center front
B
A
4
5
6
Trace begins

Figure 2

- Pivot dart leg B, covering space 4.
- Trace pattern from shoulder mark 1 to 2. (Bold line indicates traced section.)

Figure 2

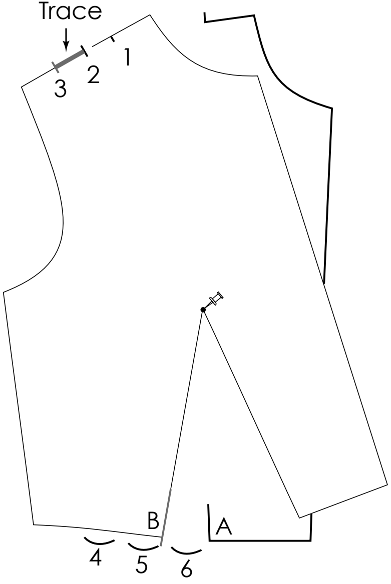
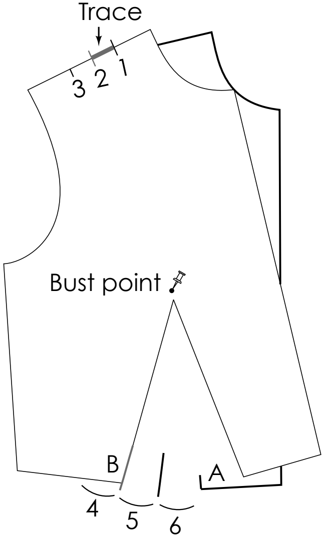

Trace
3
2
1
B
A
4
5
6

Figure 3

- Pivot dart leg B, covering space 5.
- Trace pattern from shoulder mark 2 to 3 and crossmark.

Figure 3


Trace
3
2
1
Bust point
B
A
4
5
6

Figures 4a

- Pivot dart leg B, covering space 6 (dart closes).
- Trace pattern from shoulder mark 3 to dart leg B.

Figure 4b

- Blend shoulderline.

Figure 4a

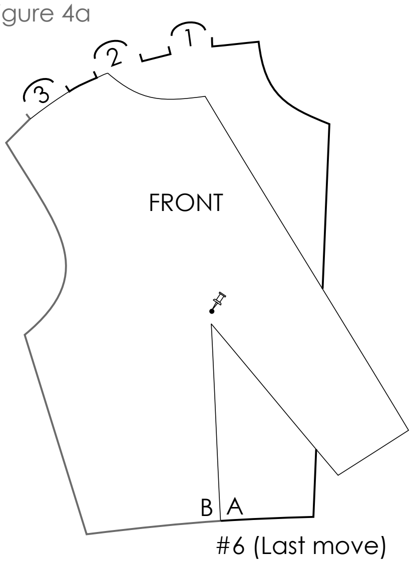
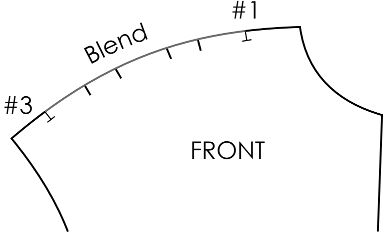

1
2
3
FRONT
B
A
#6 (Last move)

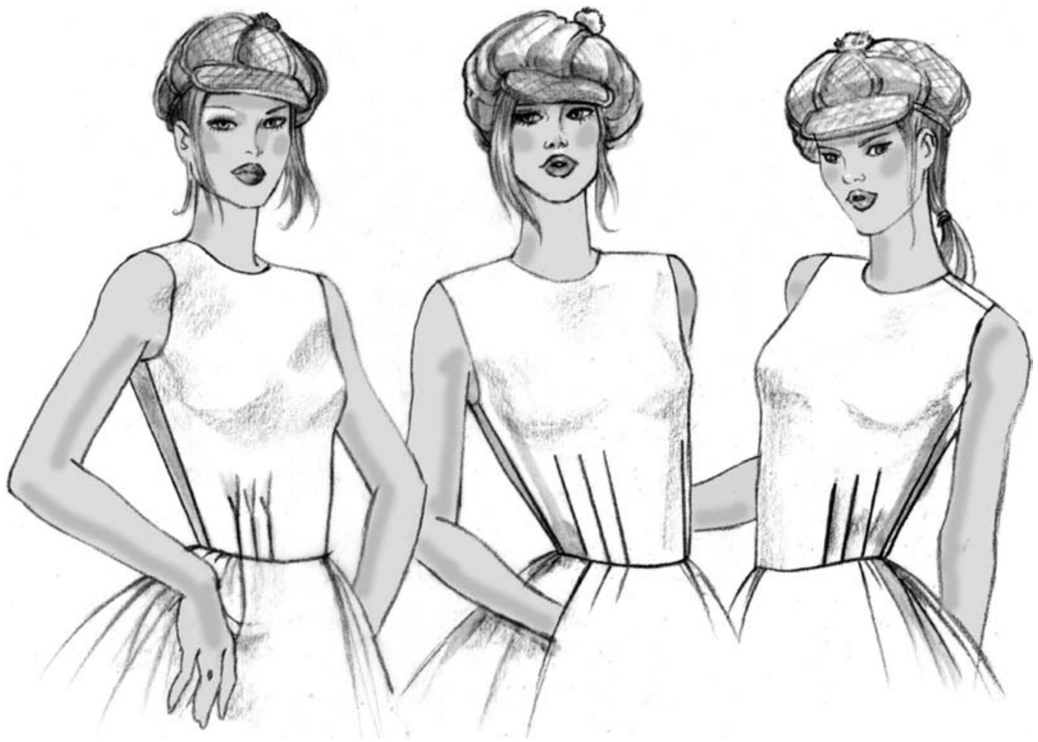
Figure 4b


#1
Blend
#3
FRONT

DART CLUSTERS AND DART EQUIVALENTS

The dart excess may be divided among multiple openings and treated as a single design unit. When used as a single design unit, the dart excess may be identified as a group of basic or stylized darts, tuck-darts, pleats, or a variation in any combination desired.

The following instructions (Figures 1, 2, and 3) apply to the development of darts, tuck-darts, and pleat clusters. The slash lines for cluster arrangements can vary, being made parallel or radiating. The examples are for practice. The methods for *completing* each cluster differ and will be illustrated by Figure 4 (dart cluster), Figure 5 (tuck-dart cluster), and Figure 6 (pleat cluster).



Tuck-darts Darts Pleats

Waist Cluster

Pattern Plot and Development

Figure 1

- Trace basic bodice.
- Square a guideline out from each dart leg 1 inch below bust point.
- Draw parallel slash lines to the guideline 1 inch from dart legs. Darts may be tapered to 3/4 inch at waistline for a slimming effect.
- Connect to bust point.
- Cut the pattern from paper.

Figure 1

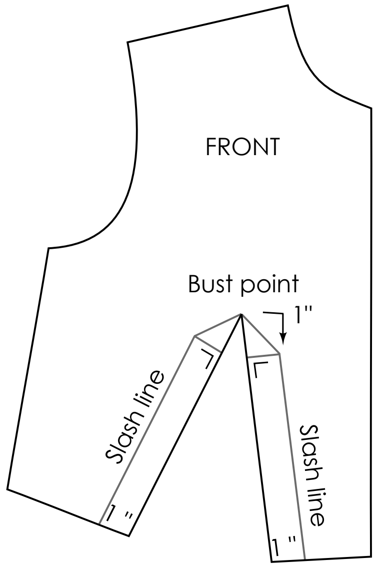


Figure 2

- Cut slash lines to, not through, bust point.
- Place on paper and spread equally, and secure.
- Draw dart legs as follows:
  - Middle dart—center dart point 1/2 inch below the guideline and draw legs to waist. Measure the length of the dart leg.
  - Outer dart legs—mark dart points 1/2 inch below on one side of the slash line. Draw dart legs equal to length of the middle dart leg.
- Add seams, and allow excess of paper below waistline for shaping darts. Cut from paper.

Figure 3

- Fold dart excess toward center front (allow pattern to cup). Waistline will be uneven.
- Draw blending line across waistline. Draw seam allowance, 1/2-inch line parallel with waistline.
- Cut excess while darts are folded, or trace (with tracing wheel) across seam allowance line.
- Unfold and pencil in perforated line.
- To complete the patterns, cut three copies for practice. Choose the dart equivalent desired (darts, tuck-darts, or pleats; see Figure 4, 5, or 6).

Figure 2

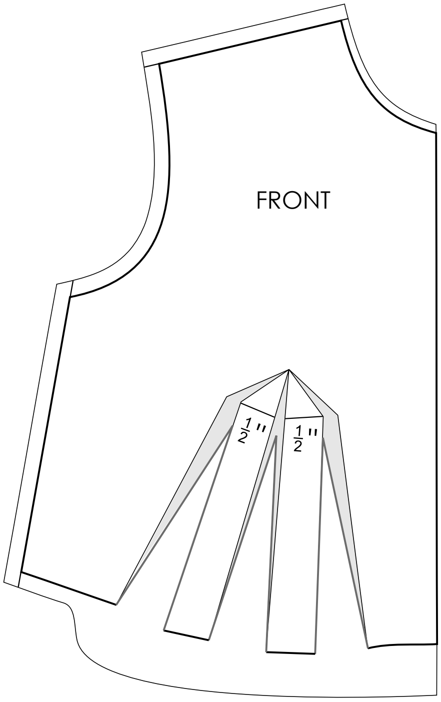
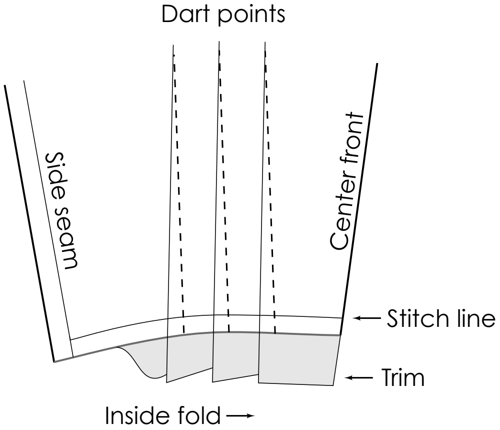


Figure 3

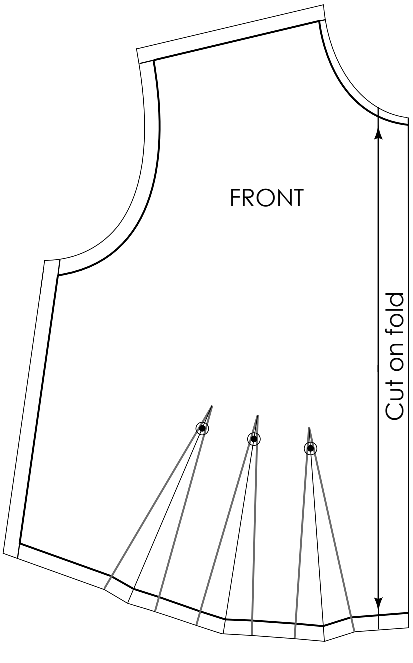


Dart Cluster

Figure 4

- Center punch hole 1/2 inch from dart point and circle.
- Notch pattern, including dart legs.
- Draw grainline. Cut basic back for test fit.

Figure 4

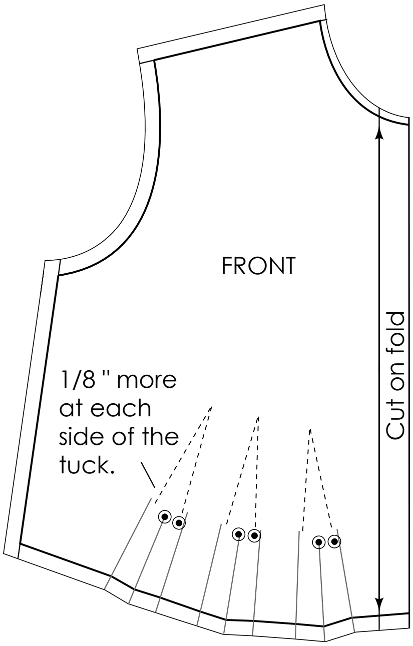


Tuck-Dart Cluster

Figure 5

- Mark the center fold of each dart for punch holes one-half the distance to dart point (varies).
- Mark punch holes in center and 1/8 inch from dart legs.
- Circle all punch marks.
- Notch seam allowance and dart legs.
- Draw grainline. Cut basic back and complete for test fit.
- For stitching guide, see Figure 1b (unstitched dart indicated by broken lines).

Figure 5



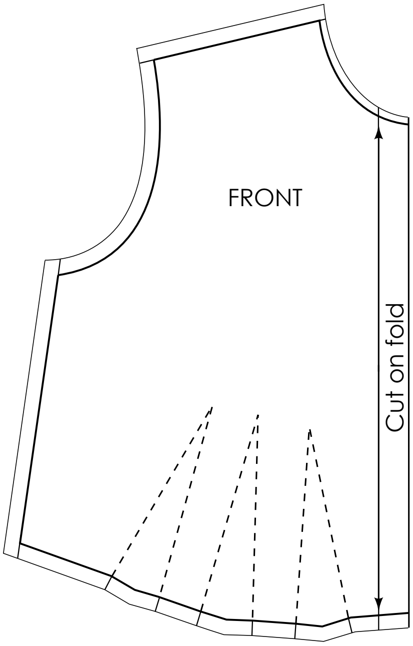
Pleat Cluster

Figure 6

- Notch each dart leg (broken lines indicate original dart legs).*
- Draw grainline. Cut basic back and complete for test fit.

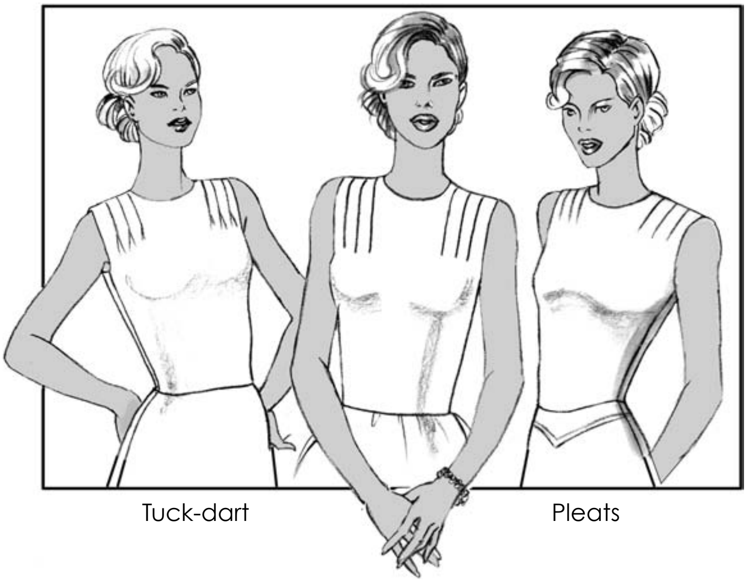
Punch holes—not required for gathers.

Figure 6



Notes:

Shoulder Cluster



Tuck-dart

Pleats

Darts

Pattern Plot and Manipulation

Figure 1

- Trace basic bodice.
- Mark mid-shoulder and label dart legs A and B.
- Draw a slash line from mid-shoulder to bust point.
- Square a guideline 1 1/2 inches above bust point.
- Draw parallel line 1 inch out from each side to guideline. Connect to bust point.

Figure 2

- Cut slash line to, not through, bust point.
- Close dart legs A and B. Tape.
- Place on paper and spread slash lines equally.
- Draw dart legs to guideline.
- To complete pattern for each design, see Figures 3, 4, 5, and 6 on the previous two pages.

Figure 1

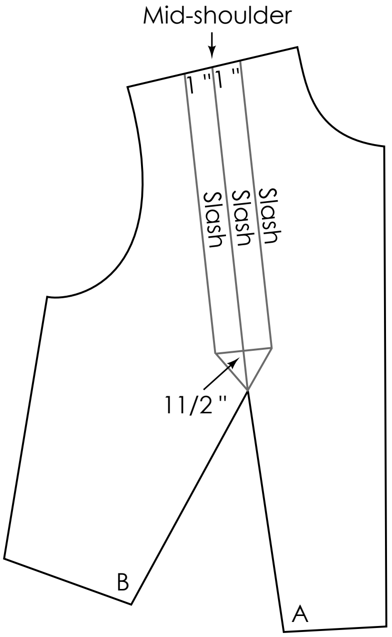
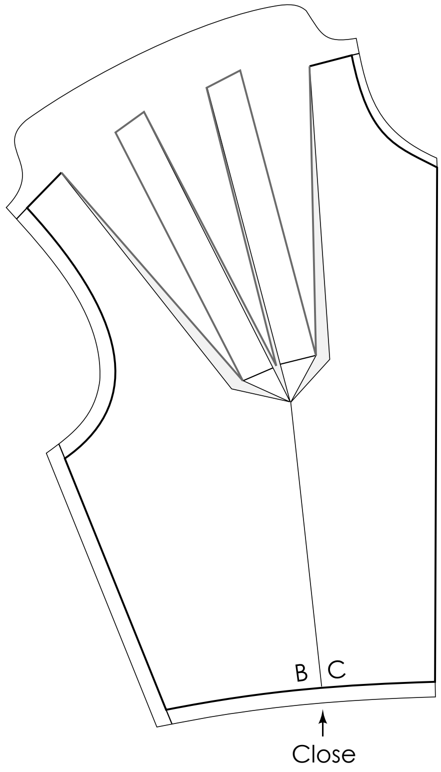
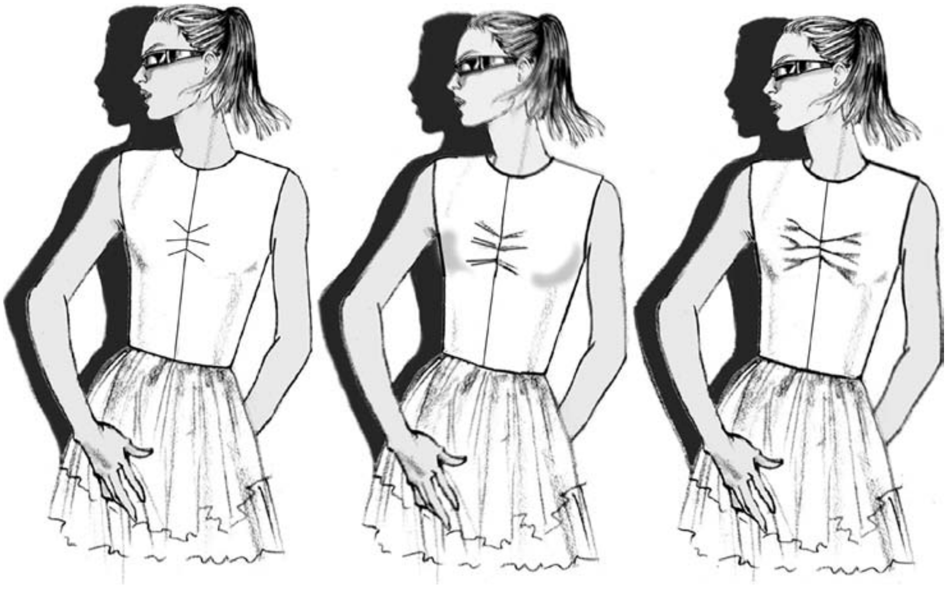


Figure 2



Center Front Bust Cluster


Pleats

Darts

Tuck-darts

Pattern Plot and Development

Figure 1

- Trace basic bodice pattern. Label dart legs A and B. Square a line from center front to bust point.
- Draw a guideline 1 inch from bust point, parallel with center front.
- Draw line 3/4 inch out from each side of line to guideline.
- Connect to bust point as shown.
- Cut pattern from paper.

Figure 2

- Cut slash lines to, not through, bust point.
- Close dart legs A and B. Tape.
- Place on paper and spread equally. Secure.
- Draw dart legs to guideline as shown.
- To complete pattern for each design, see Figures 3, 4, 5, and 6 in the Dart Cluster section a few pages back.

Figure 1

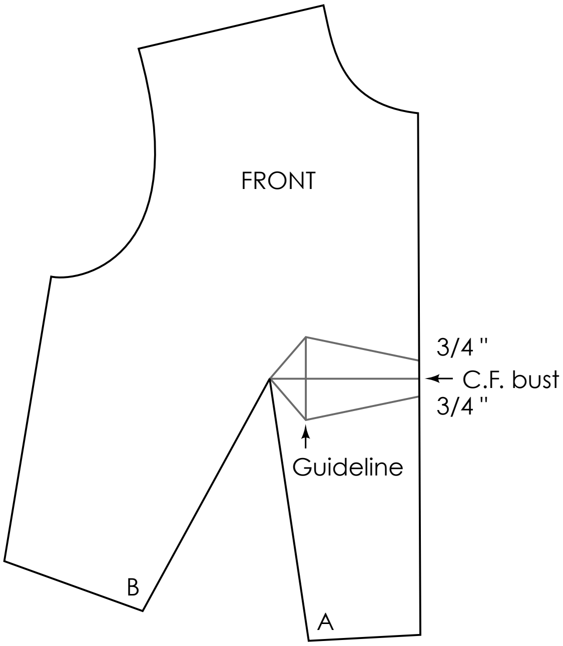
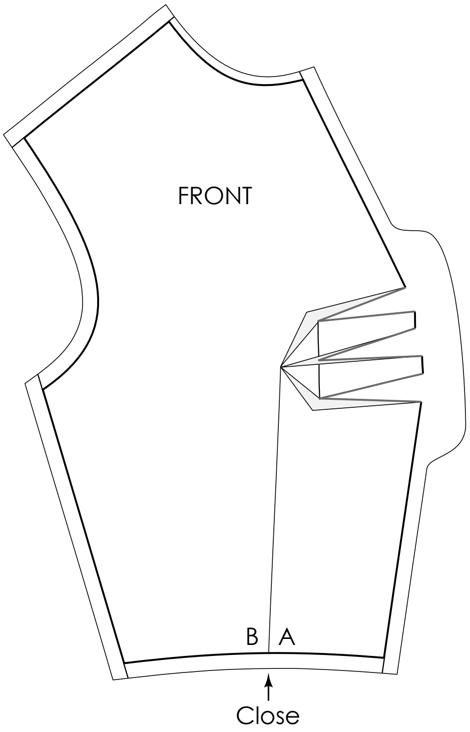
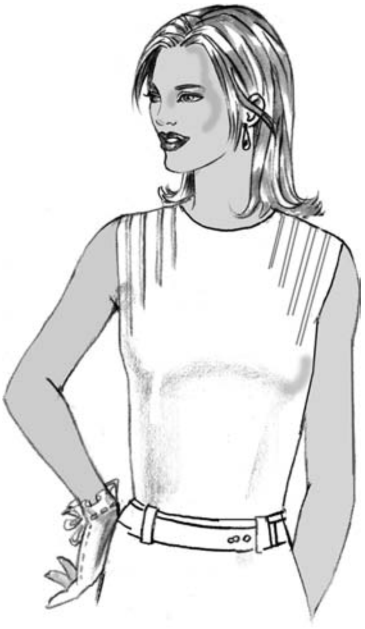


Figure 2



GRADUATED AND RADIATING DARTS

Graduated darts are darts of varying length within a group. Radiating darts spread out (radiate) from a focal point in a balanced arrangement and may be of the same or a graduated length. To prevent bulging at the tip of the darts that are farthest from the bust mound, the dart intake is generally 1/2 inch, with all remaining excess being absorbed by the dart closest to the bust mound. Use back pattern to complete the design.



Graduated Darts

Design Analysis

Design features graduating darts along the shoulderline. The longest dart ends at bust level.

Pattern Plot and Manipulation

Figure 1

- Trace bodice front and label darts legs A and B.
- Square a line from the center front to the side seam, passing through the dart point.
- Draw a slash line from center front to 1 inch past the dart point. Label C.
- Draw four slash lines equally spaced from shoulder to guideline.
- Cut from paper.

Figure 2 New Pattern Shape

- Cut from neck to C and from C to dart point.
- Close dart legs A and B. Tape.
- Cut slash lines to, not through, guideline.
- Place on paper, spread, and tape. (Corner at neck will not meet, and part of guideline overlaps.)
- Trace the pattern and blend neckline.
- Center dart point 1 inch up from slash lines.
- Draw dart legs, fold and blend shoulder.
- Complete 1/2 inch seams. Trim fullest dart legs to within 1/2 inch of seamline. Add 1/4 inch at neck.

Figure 1

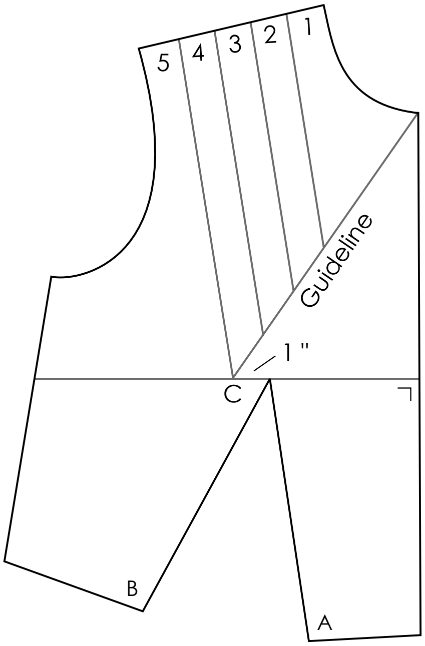
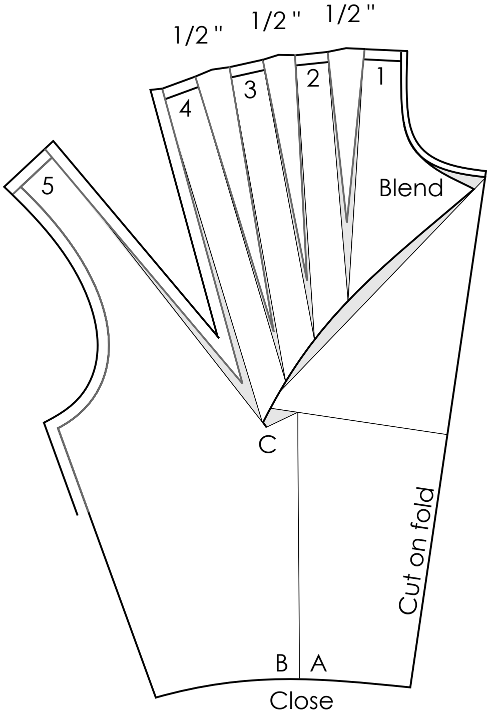
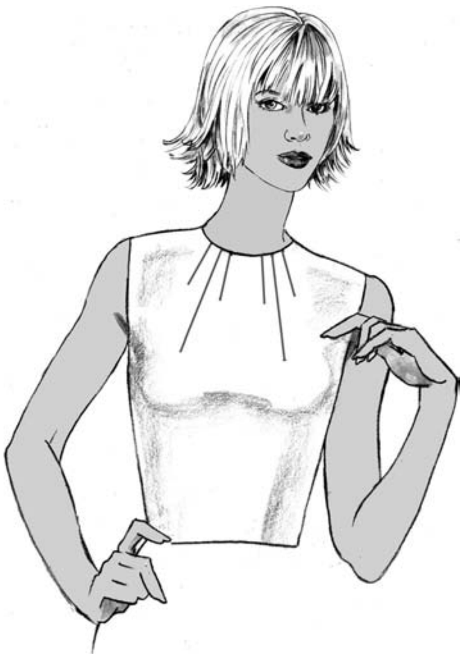


Figure 2



Radiating Darts

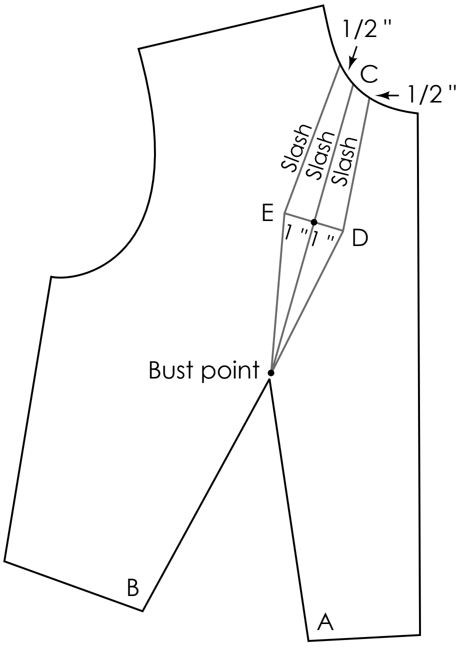


Pattern Plot and Manipulation

Figure 1

- Trace basic pattern. Label dart legs A and B.
- Draw a slash line from mid-neck to bust point. Label C.
- Locate mid-point on line C. Square out 1 inch on each side. Label D and E.
- Measure out 1/2 inch on each side of C. Mark and draw slash lines to D and E and to bust point.

Figure 1



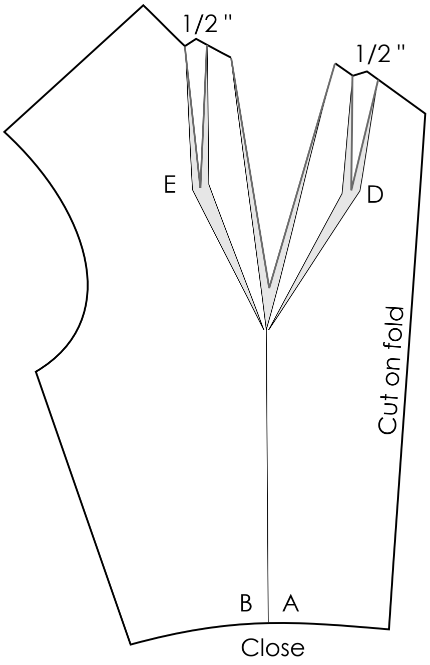
Design Analysis

Design features radiating darts from neck, with the longest dart placed at mid-neckline and directed to bust point.

Figure 2 New Pattern Shape

- Cut slash lines to, not through, bust point.
- Place on paper. Close dart legs A and B. Tape.
- Spread lines D and E 1/2 inch at neck. Remaining excess is taken up by middle dart.
- Locate dart points between guidelines as shown, with middle dart point 1 inch from bust point.
- Draw dart legs to dart point. Fold darts and blend neckline.
- Trace basic back, add seams, and complete pattern for test fit.

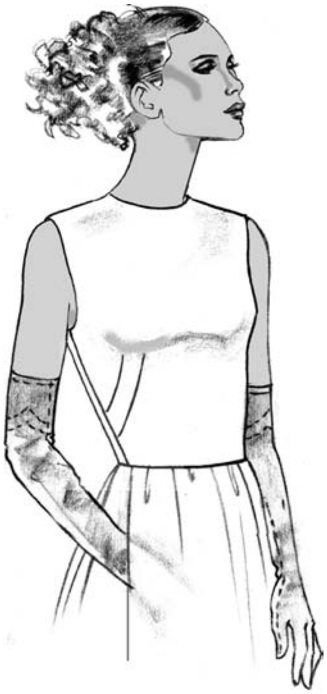
Figure 2



PARALLEL DARTS

Parallel darts can be created by using the dart points, or the bust point and dart point of a two-darted pattern. Space between the parallel darts can be increased by moving the dart point of the side dart farther from bust point.

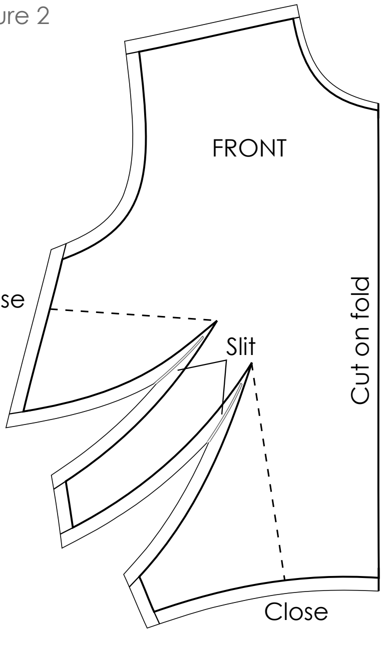
Parallel French Darts



Design Analysis: Design 1

Design 1 features curved and parallel French darts. Transfer waist and side dart to the curved dart lines.

Figure 2



Pattern Plot and Manipulation

Figure 1

- Trace two-dart front bodice pattern.
- Draw curved parallel slash lines from dart points to side as shown.
- Cut pattern from paper.

Figure 1

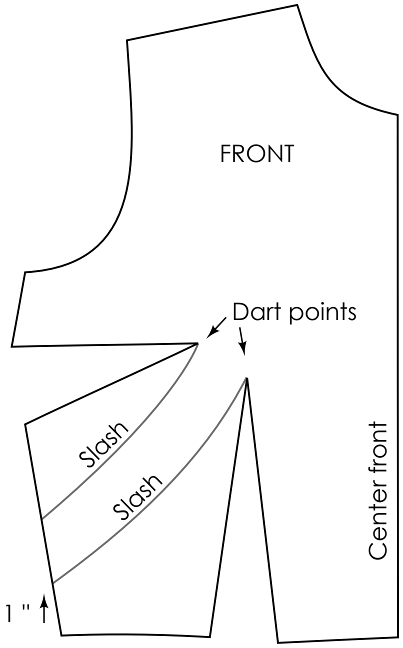


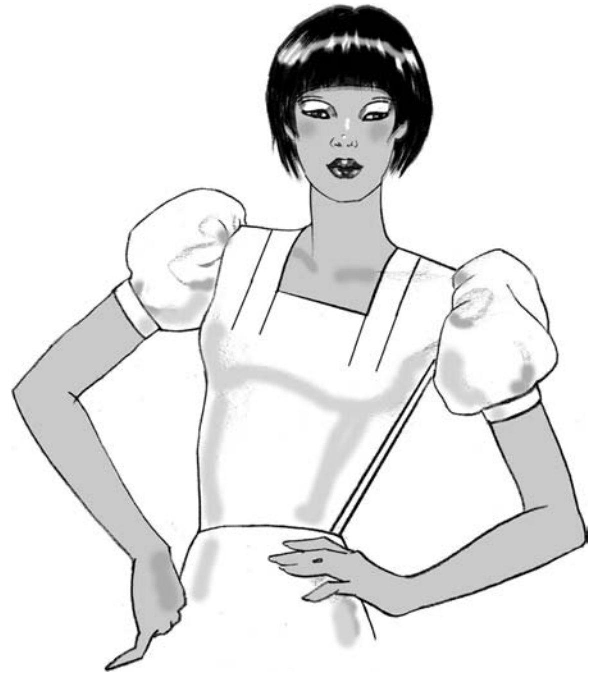
Figure 2 New Pattern Shape

- Cut slash lines to, not through, dart points.
- Close side and waist darts. Tape.
- Trace pattern on fold.
- Add seams and grainline.

Method for Finishing Darts

- Add 1/2-inch seam allowance to darts.
- Where dart seams come together, slash a line 1/16 inch wide to within 1/2 inch of dart point, following curve of dart. Slash curve.
- Use the basic back pattern to complete the pattern for a test fit.

Parallel Darts at Neck



Design Analysis: Design 2

Parallel curved dart legs begin at corner of the neck. Neckline depth is 3 inches.

Pattern Plot and Manipulation

Figure 1

- Trace two-dart front bodice.
- Draw curved slash line from dart point of waist dart to corner of neck. Crossmark at bust.
- Draw a parallel slash line from side dart point to shoulderline and draw curve neck.

Figure 1

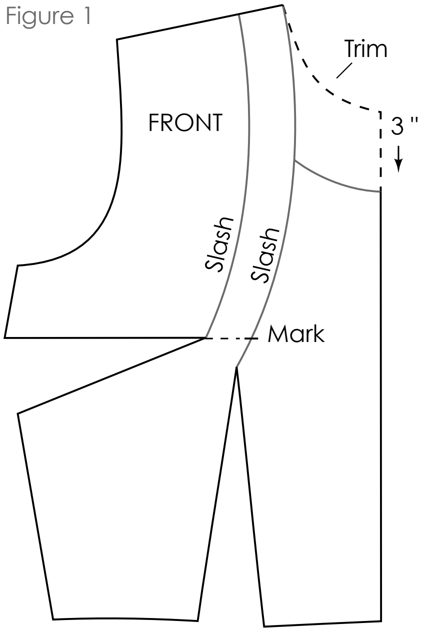

Trim
3 "
FRONT
Slash
Slash
Mark

Figure 2

- Cut from paper and trim neckline facing.
- Trace on folded paper using measurements given.
- Add seams.

Figure 2

Facing: Trace on folded paper

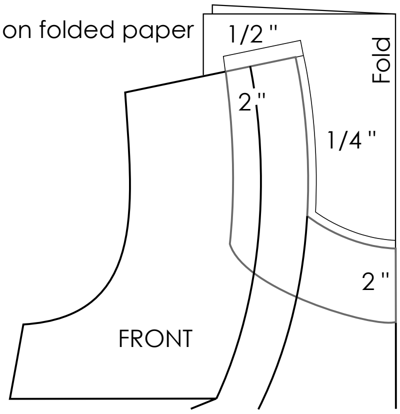
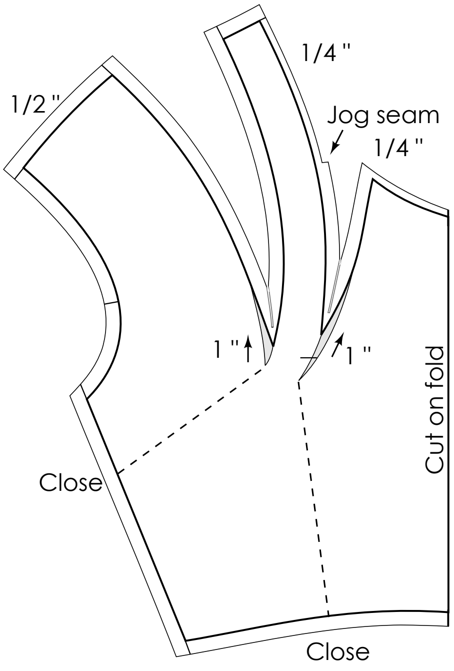

1/2 "
Fold
2 "
1/4 "
2 "
FRONT

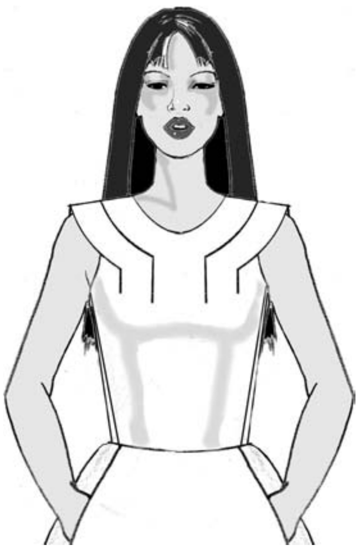
Figure 3

- Cut to dart points and close darts. Trace.
- Draw new dart points 1 inch from original dart.
- Add seams and draw grainline. Add seams.
- A jog seam at the dart and neckline intersection requires a 1/4-inch seam allowance for facing.

Figure 3


1/4 "
1/2 "
Jog seam
1/4 "
1 "
1 "
Cut on fold
Close
Close

Parallel Darts—Cape Effect

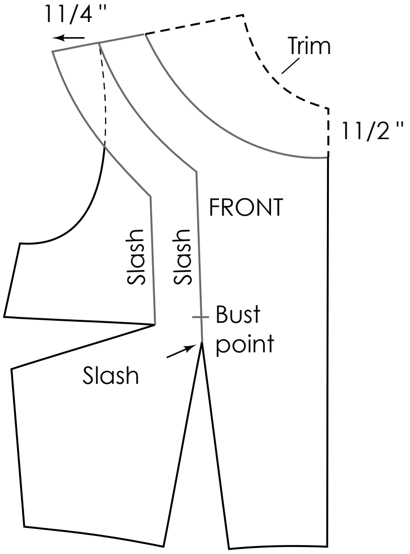


Pattern Plot and Manipulation

Figure 1

- Trace pattern, extend shoulder 1 1/4 inches.
- Draw vertical slash lines up from dart points, parallel with the center front. Mark bust point.
- Draw a curved line from extended shoulder until it intersects with vertical line from the side dart.
- Draw a parallel curve line to next vertical line.
- Draw a parallel curve line for the neckline.
- Cut from paper and trim neckline.

Figure 1



Design Analysis: Design 3

Stylized darts extend beyond shoulder tip, creating a cape effect. The neckline parallels the curved lines.

Figure 2 Facing

- Trace on folded paper as shown. Add seams.

Figure 2

Facing: Trace on folded paper

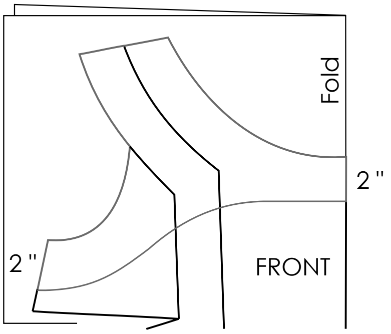
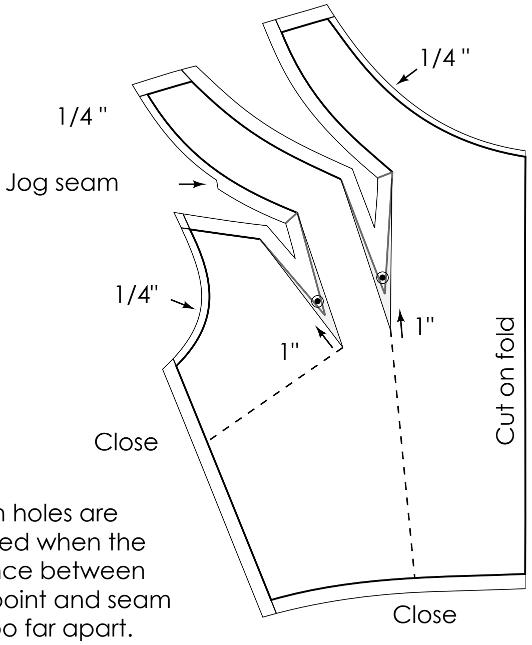


Figure 3 New Pattern Shape

- Cut slash lines to dart points and bust point.
- Close darts and tape.
- Place on paper and trace.
- Mark dart points 1 inch up.
- Draw dart legs and mark punch holes.
- Add grainline and seams as shown.

Figure 3

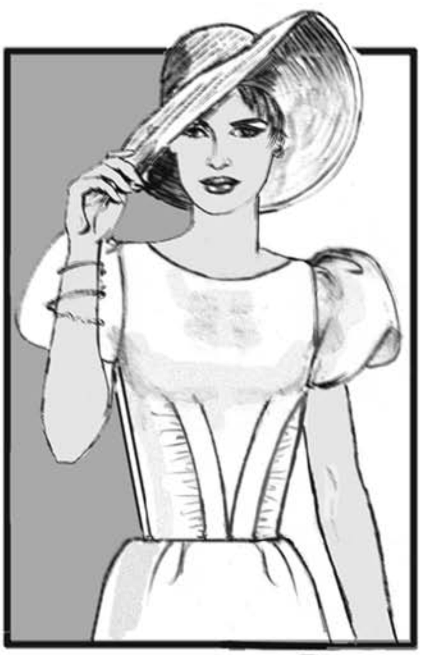


Punch holes are required when the distance between dart point and seam are too far apart.

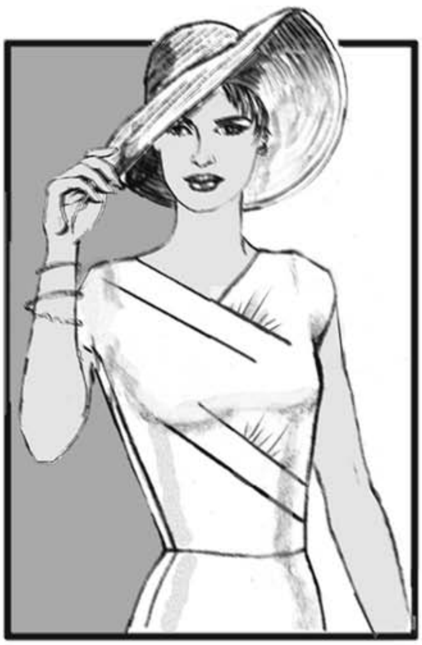
Parallel Dart Design Variations

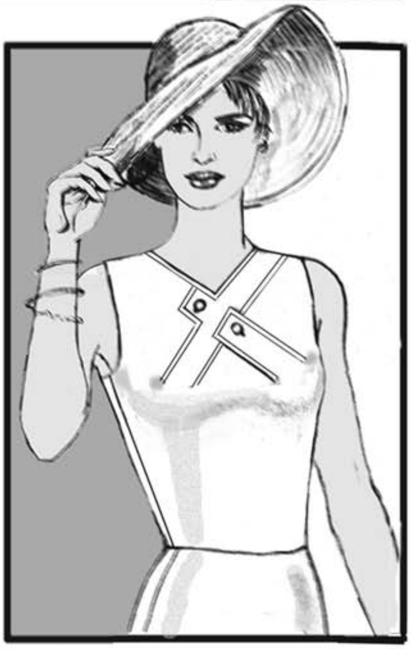
The parallel dart designs are practice problems. The generated patterns are correct if they result in exact replicas of the designs.

Design 1

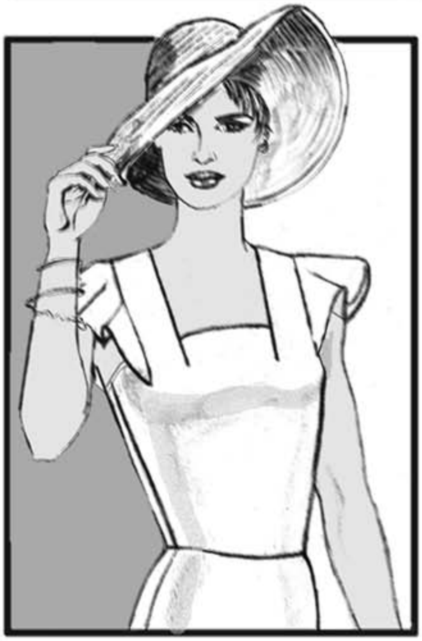


Design 2





Design 3



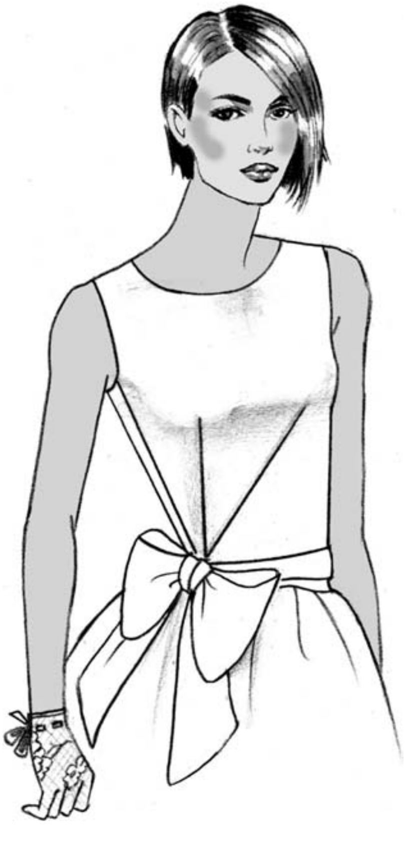
Design 4

ASYMMETRIC DARTS

Asymmetric darts cross center front of the garment. Pattern shapes will change radically from that of the working pattern. Asymmetric darts require special pattern handling and identification, as do all designs that differ from side to side. Compare pattern shapes with each design. Cut basic back to complete the design for test fit.

- A full front pattern is required.
- Right-side-up instructions are necessary.
- The existing dart of the working pattern may interfere with the placement of a stylized dart. If so, the dart should be transferred temporarily to another location (such as mid-armhole) before the pattern is plotted. Seam allowance is illustrated for each pattern because of the dart's unique shape and location (1/4 inch at neck; 1/2 inch at shoulder, armhole, and waist; and 1/2 to 3/4 inch at side seams).

Asymmetric Radiating Darts



Design Analysis: Design 1

Both darts end at the waist on the same side, forming tuck-darts. Scoop neckline completes the design. Transfer waist darts to mid-armhole location, where they will not interfere with plotting of the stylized darts. Beginners may want to use a basic neckline (bow not illustrated).

Pattern Plot and Manipulation

Figure 1

- Trace pattern on fold, transferring waist dart to mid-armhole dart location. Draw neckline.
- Cut from paper. Unfold.
- Draw slash lines from bust points to side waist.
- Crossmark 3 inches up from the corners of each slash line to indicate the length of the tuck-dart.

Figure 1

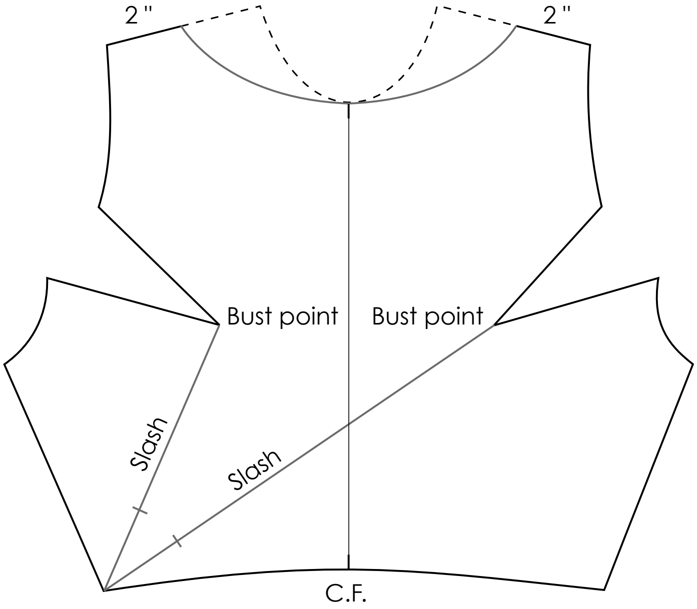

2 "
2 "
Bust point
Bust point
Slash
Slash
C.F.

Figure 2 New Pattern Shape

- Cut slash lines to, not through, bust point.
- Close dart legs. Tape and trace.
- Label right-side-up. Draw grainline and add seams.

Tuck-Darts

- Draw seams across open dart 1/2 inch below each crossmark.
- Cut from paper. (Broken lines show the discarded part of dart legs.)

Figure 3

- To complete the pattern, trace back, marking 2 inches in from shoulder tip, and 1/4 inch down, ending at center back.
- Remaining dart excess is trimmed at shoulder.
- Complete pattern for test fit.

Figure 2

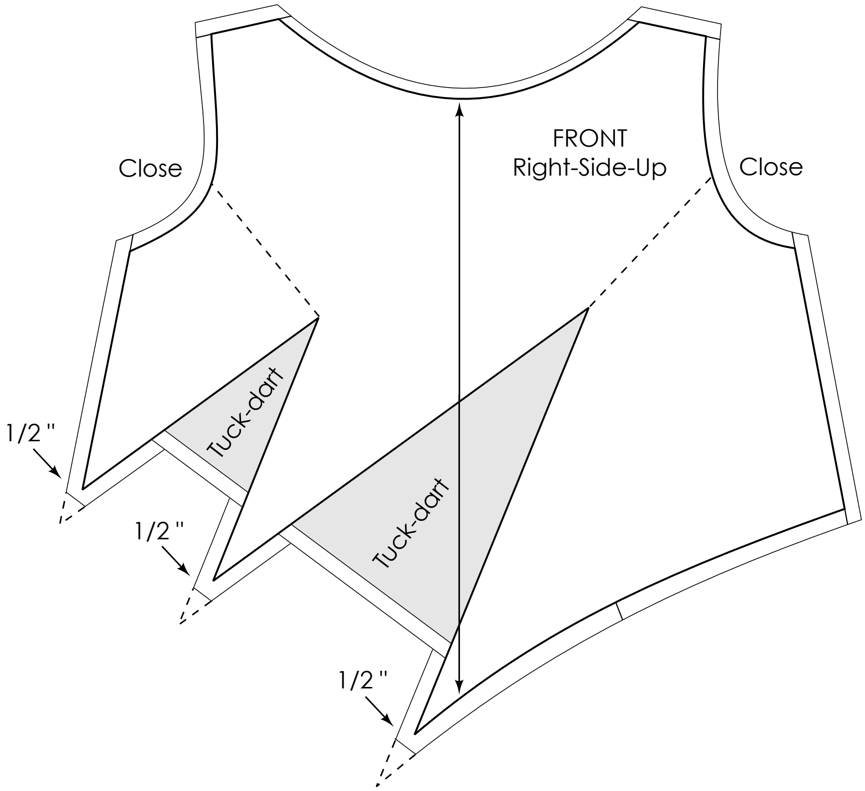
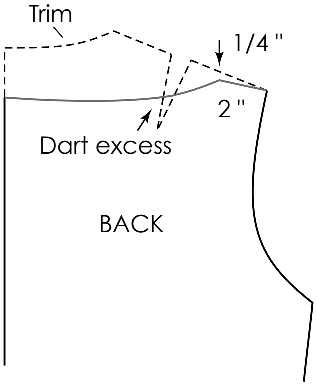
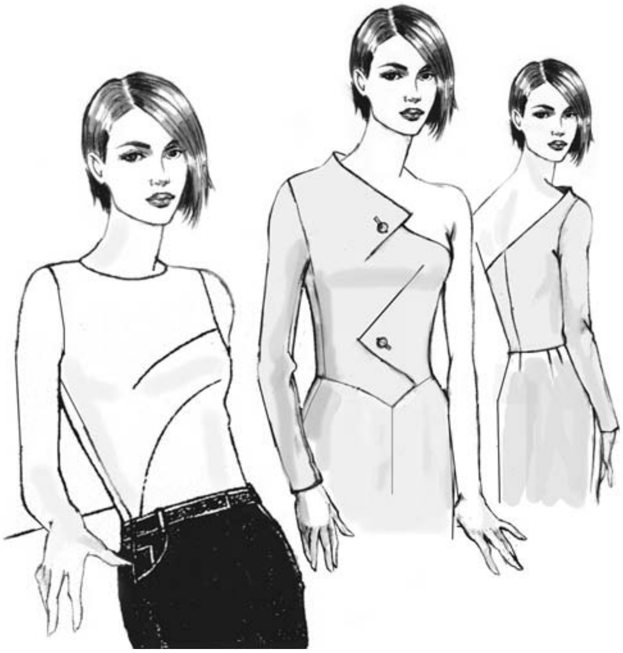

FRONT
Right-Side-Up
Close
Close
Tuck-dart
Tuck-dart
1/2 "
1/2 "
1/2 "

Figure 3


Trim
1/4 "
2 "
Dart excess
BACK

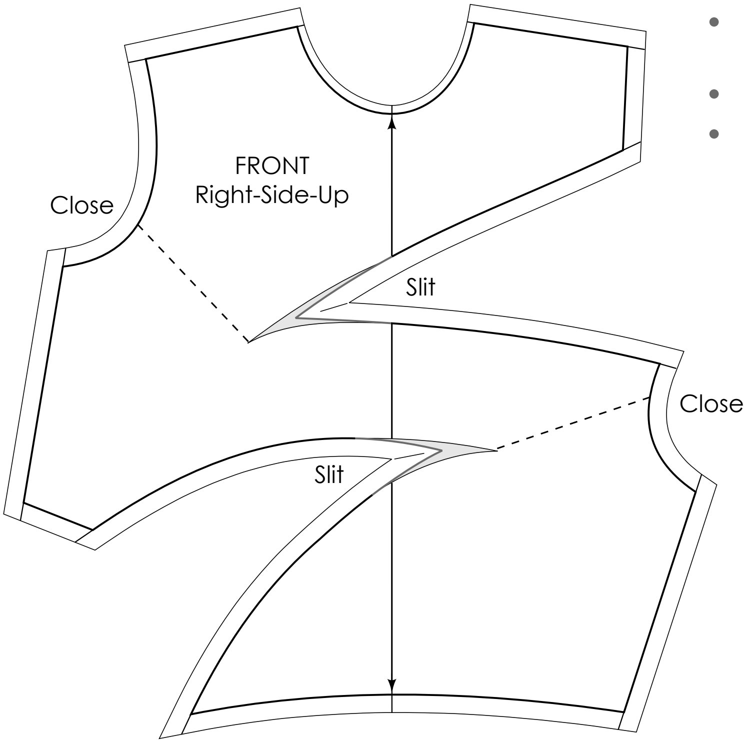
Asymmetric Curved Darts



Design Analysis: Design 2

Design 2 features curved darts that cross over center front. One dart ends at the armhole and the other at the waist. Before plotting the style darts, transfer waist darts to mid-armhole.

Figure 2


FRONT
Right-Side-Up
Close
Slit
Close
Slit

Pattern Plot and Manipulation

Figure 1

- Trace front pattern on fold, transferring waist darts to mid-armhole location. Cut and unfold.
- Draw a curved line from bust point to waist.
- Draw a parallel line from bust point to armhole.

Figure 1

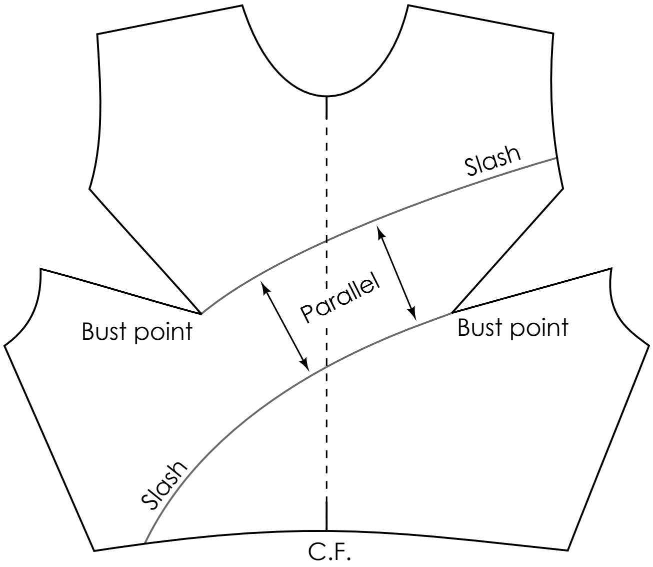
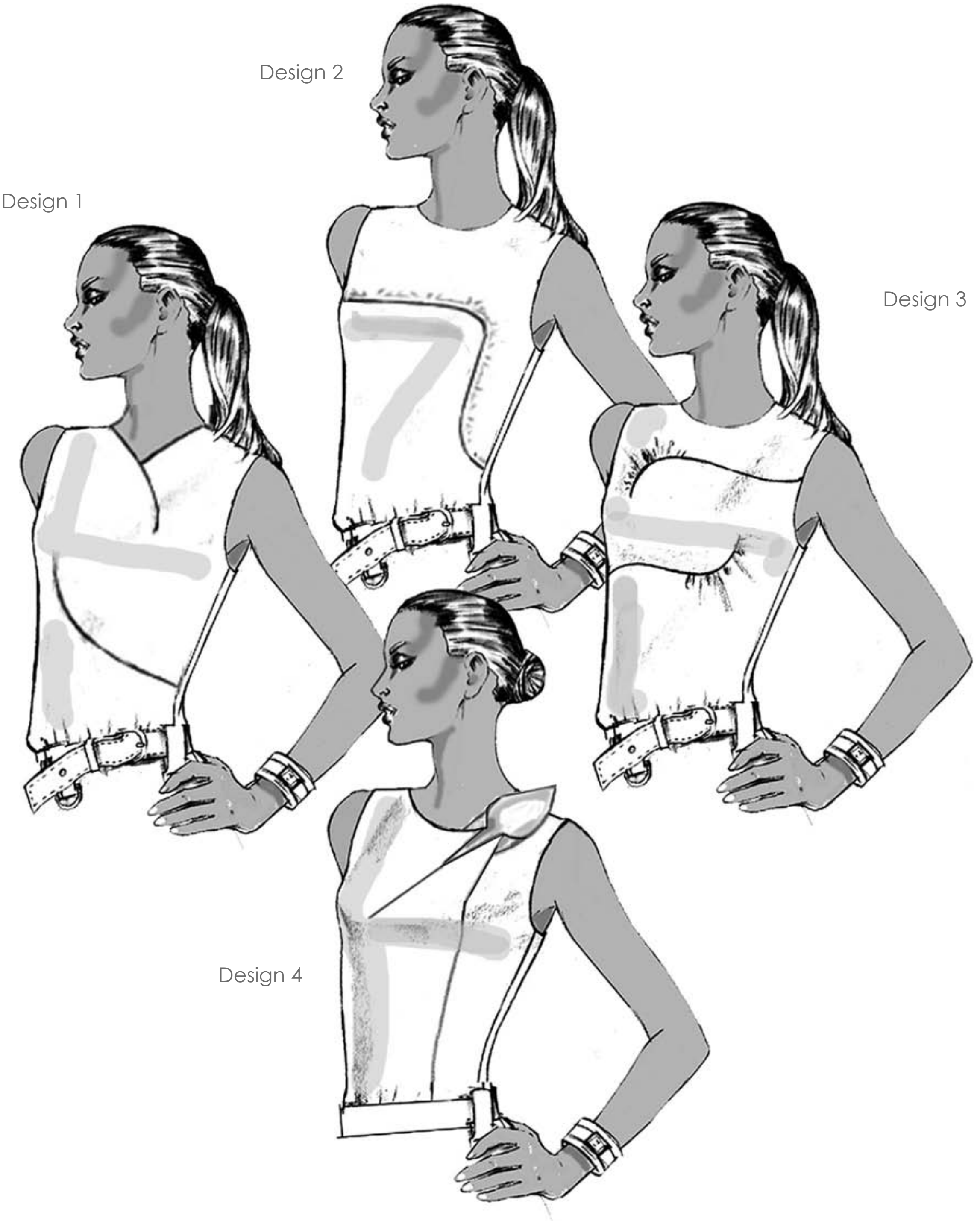

Slash
Parallel
Bust point
Bust point
Slash
C.F.

Figure 2 New Pattern Shape

- Cut slash lines to, not through, bust points.
- Close dart legs. Tape and trace pattern.
- Center dart points 1 inch from bust point. Draw dart legs.
- Label right-side-up. Add seams and grainline.
- Complete pattern for test fit.

Asymmetric Dart Variations

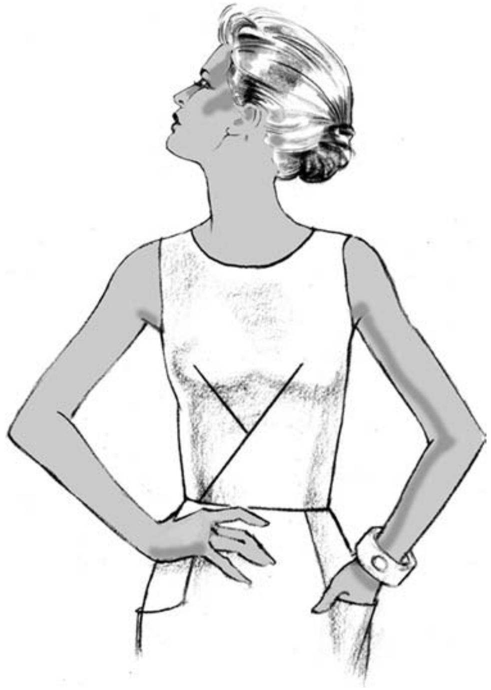
Designs are practice problems. Designs 3 and 4 are given for advanced students. The generated patterns are correct if they result in exact representations of the designs.


Design 2
Design 1
Design 3
Design 4

INTERSECTING DARTS

Intersecting darts resemble asymmetric darts and dart equivalents. The darts cross center front and intersect with each other. To complete the design, use basic back patern.

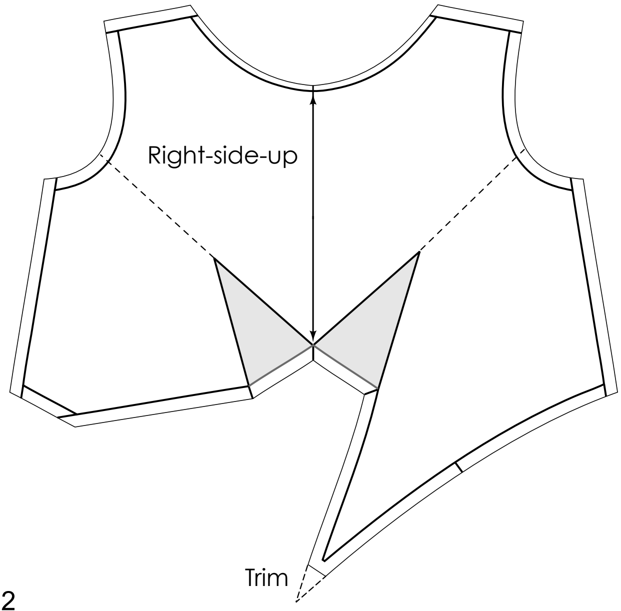
Intersecting Dart to Waist



Design Analysis: Design 1

Darts are treated as pleats in the "V" section. The neckline is cut away.

Figure 2



Pattern Plot and Development

Figure 1

- Trace pattern on fold, transferring waist dart to mid-armhole.
- Draw neckline 1 inch in from neck at shoulder. Blend to center front neck.
- Cut from paper. Unfold.
- Draw slash lines intersecting at center front.

Figure 1

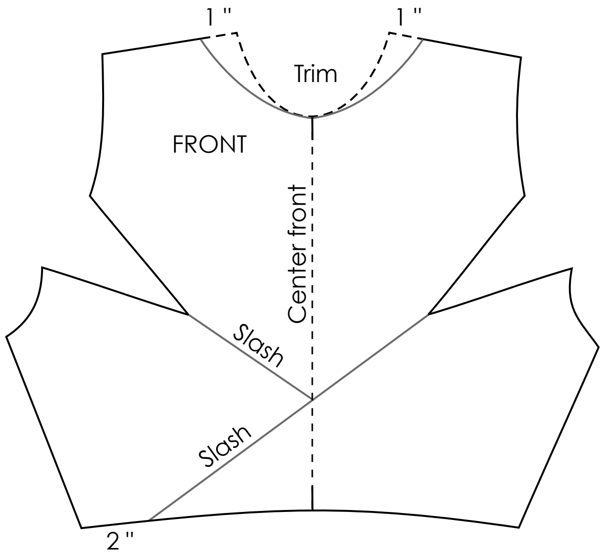


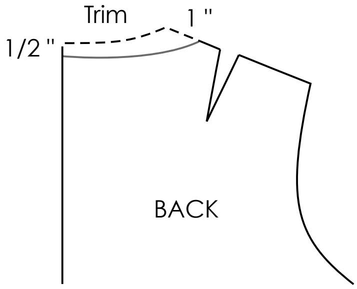
Figure 2

- Cut slash lines to, not through, bust points.
- Close dart legs. Tape.
- *Pleats:* Fold darts.
- Add seams and notches for pleats.
- Draw grain and label right-side-up.
- Cut from paper.

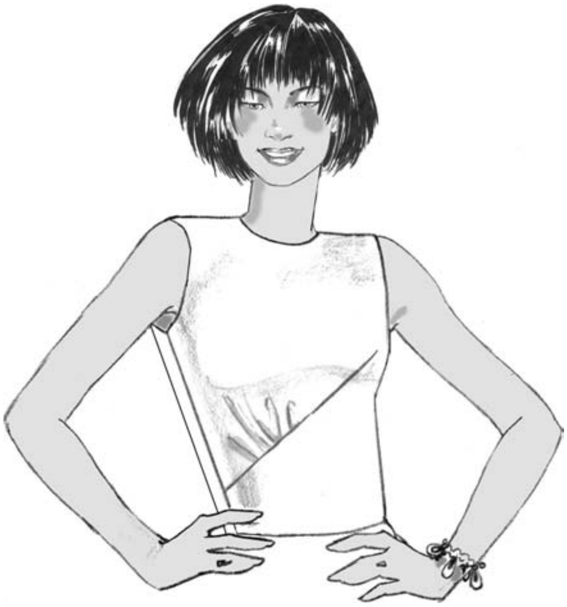
Figure 3

- Trace back neckline, marking 1 inch from shoulder at neck and 1/2 inch at center back neck.

Figure 3



Intersecting Dart with Gathers



Design Analysis: Design 2

Design 2 features one stylized dart crossing the center front to the opposite side, ending above the side waist. Gathers (dart equivalents) form under the bust.

Figure 2

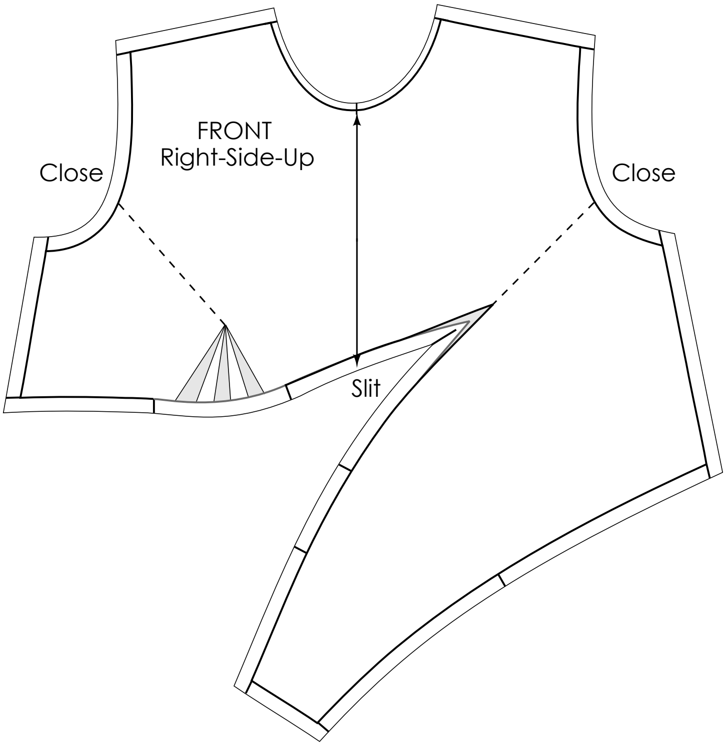


Figure 1

- Trace pattern on fold, transferring waist darts to mid-armhole.
- Cut and unfold.
- Draw styleline from dart point to side waist, passing 3 inches below bust.
- Draw slash lines for gathers.
- Mark notches 1/2 inch out from first and last slash line for notches as gather control.

Figure 1

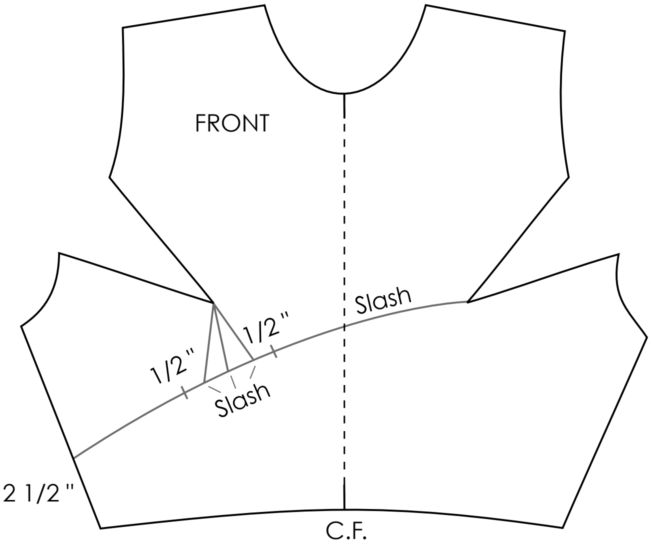
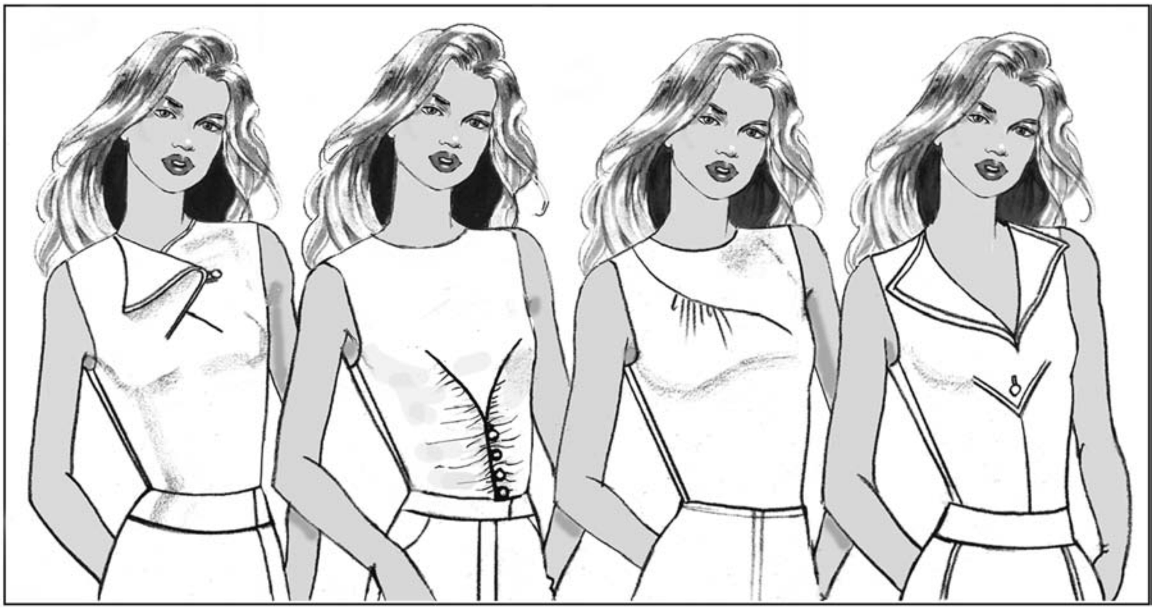


Figure 2

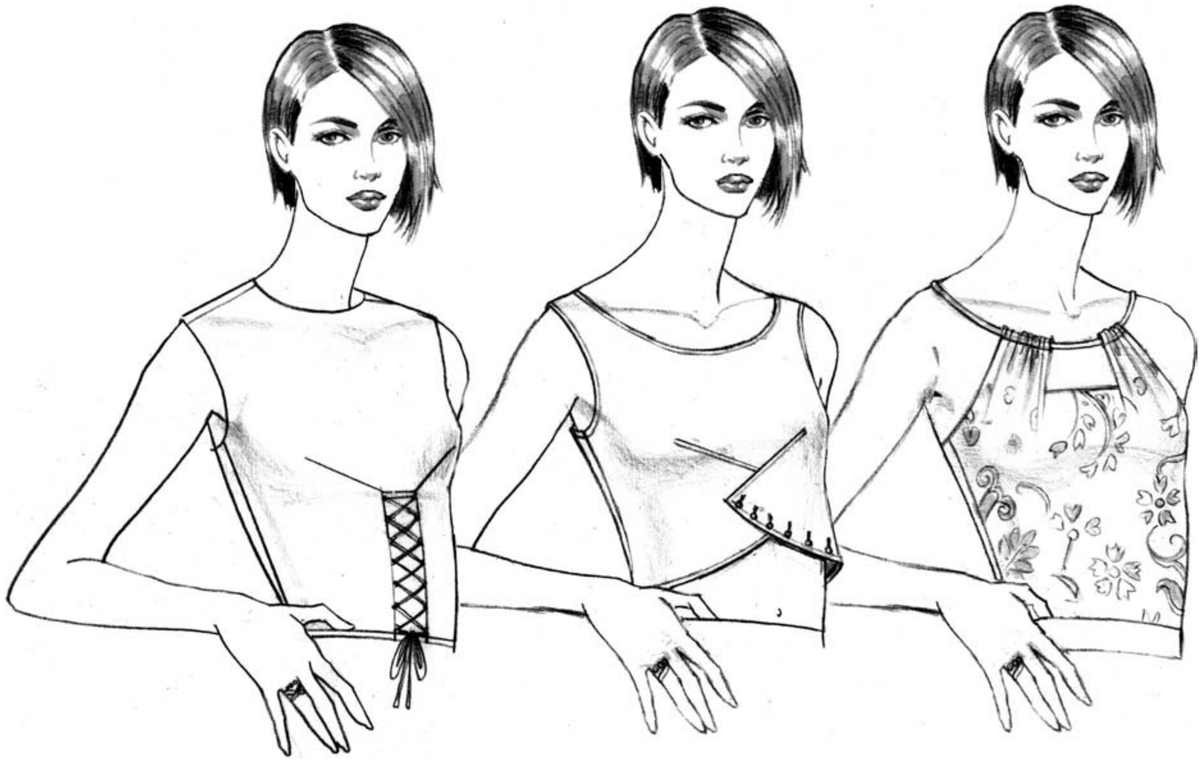
- Cut slash lines to, not through, dart points.
- Close darts. Tape.
- Place on paper and spread section equally for gathers and trace.
- Center dart point 1/2 inch from bust point and draw dart legs.
- Add seams; blend gathered area.
- Draw grainline, mark notches, and label right-side-up.
- Cut from paper.
- Trace basic back and complete pattern for test fit.

Intersecting Dart Design Variations

The intersecting dart designs are practice problems. The generated patterns are correct if they result in exact representations of the designs.



Design 1 Design 2 Design 3 Design 4



Design 5 Design 6 Design 7

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Special Information

Set form to desired height and measure the following:

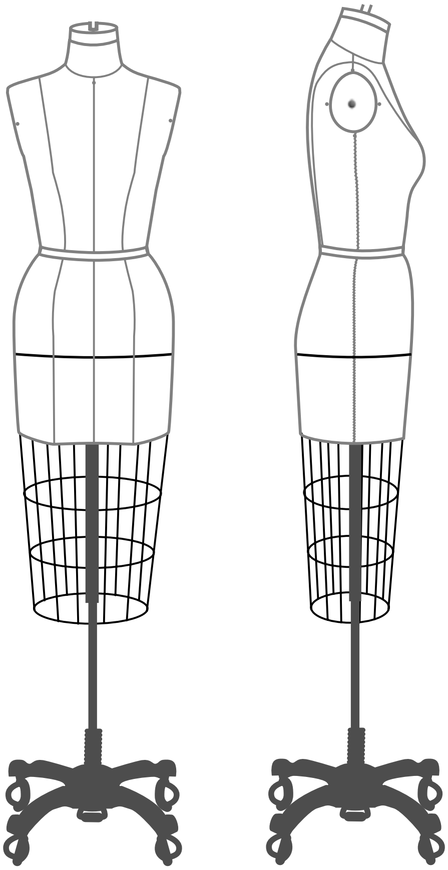
C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____
2. Waist: _____
3. Abdomen: _____
4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____ B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
    Front = 1" (2 darts 1/2 to 5/8")
    Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

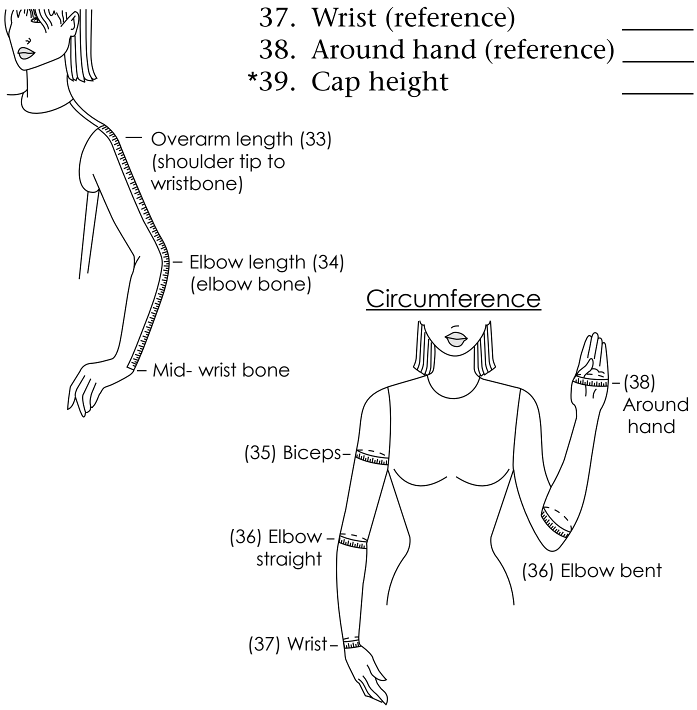
22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____


Length
Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone
Circumference
(38) Around hand
(35) Biceps
(36) Elbow straight
(36) Elbow bent
(37) Wrist

*Measuring the Arm

Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

Stylelines

INTRODUCTION
CLASSIC PRINCESS STYLELINE
    Classic Princess Styleline Variations
ARMHOLE PRINCESS STYLELINE
    Armhole Princess Styleline Variations
PANEL STYLELINE
    Panel Styleline Variations

From Chapter 6 of *Patternmaking for Fashion Design,* 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

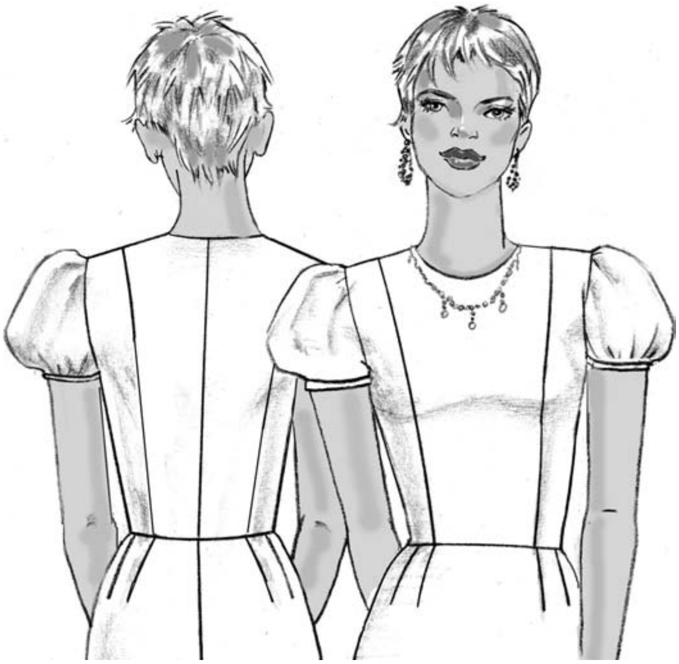
INTRODUCTION

Stylelines fall into two classifications: those that cross over the bust and those that do not. Stylelines discussed in this chapter are those crossing over the bust, replacing dart legs with style seams. Stylelines that absorb dart excess within stitchlines control the fit of the garment and are called *dart equivalents,* as discussed in the corollary for Principle #1, Dart Manipulation. The original size and fit of the garment remain the same, even though the shapes of the pattern pieces have been changed through manipulation.

Stylelines *not* crossing bust point are not dart equivalents. The panel design included in the chapter represents this type and clarifies the difference between the two styleline types.

CLASSIC PRINCESS STYLELINE

The classic princess should be developed and perfected as a seamless working pattern. It is a popular base for other design variations. Seams are added as a guide for all stylelines.



Design Analysis

The classic princess is distinguished by a styleline that starts at the front and back waist darts, continues over bust points and shoulder blades, and ends at mid-shoulder dart of the back (position of dart point can vary to improve styleline). Stylelines (dart equivalents) replace darts. The design can be based on the one- or two-dart pattern. (The two-dart pattern is illustrated.)

Pattern Plot and Manipulation

Figure 1 Front Bodice

- Trace front of two-dart pattern.
- Draw styleline from mid-shoulder (in line with back shoulder dart) to bust point and from bust point to dart leg at waist.
- Crossmark for ease control notches, 2 inches above and below bust point.
- Draw slash line from bust point to dart point of side dart.

Figure 1

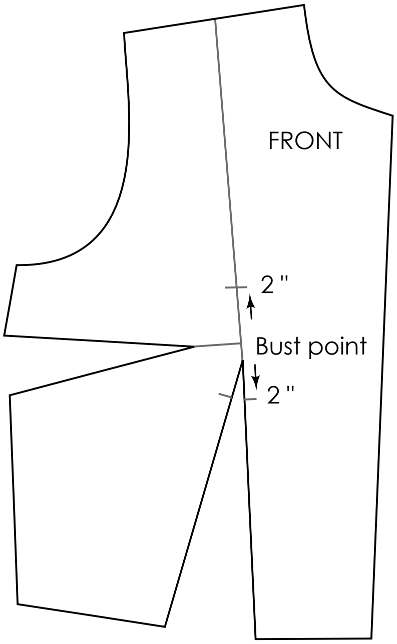


Figure 2 Separate Pattern

- Crossmark 3/4 inch from bust point (new pivot point). Label X.
- Cut and separate pattern along styleline.

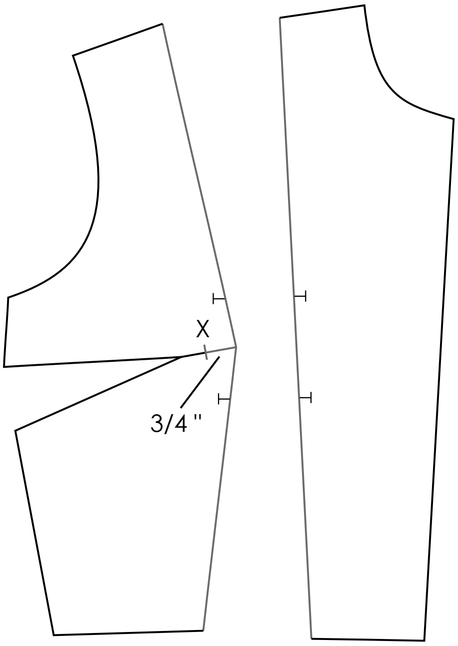

X
3/4 "
SIDE FRONT
FRONT

Figure 2

Figure 3 Side Bust Ease

- Cut slash line from bust point and dart point to, not through, point X.
- Close side dart legs. Tape. (This provides ease for the side bust.)

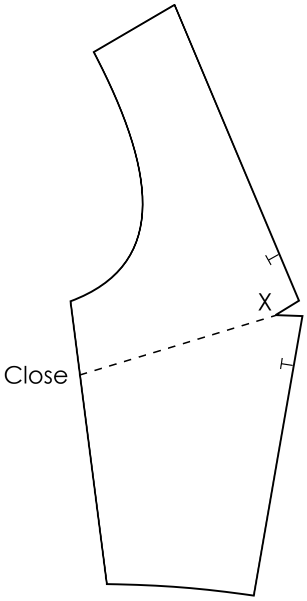

X
Close
SIDE FRONT

Figure 3

Figure 4 Shaping Styleline

- Retrace side front panel.
- Shape bust curve, as shown. (Broken lines represent original shape of panel.)

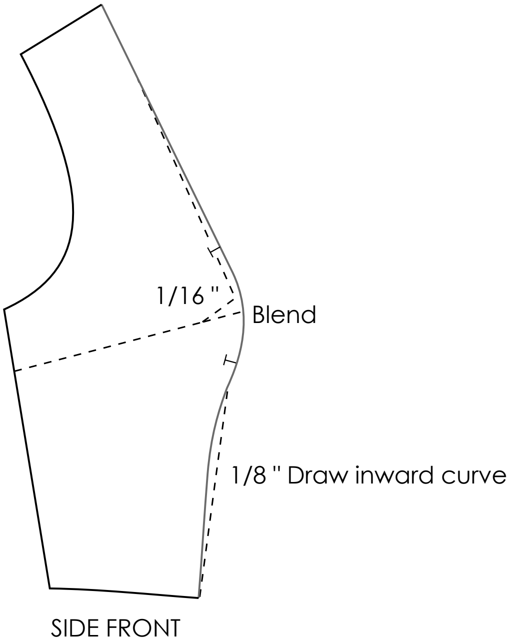

1/16 "
Blend
1/8 " Draw inward curve
SIDE FRONT

Figure 4

Figure 5 Adding Additional Ease

- Developing designs from a one-dart pattern or if more ease is needed, slash from bust point to side seam and spread 1/4 inch or more. Retrace, blend, and shape. See Figure 4.

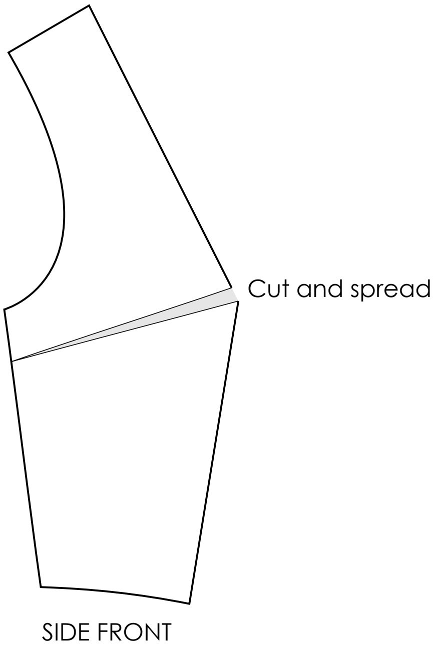

Cut and spread
SIDE FRONT

Figure 5

Figure 6 Optional Front Panel Shaping

- To shape front panel, place side panel on top of front panel, matching waist and bust points.
- Trace side panel curve to front panel from waist to bust. Blend. (Broken line represents original shape of front panel and pattern underneath.)
- Adjust ease control notches on side front panel when walking the patterns.

Figure 7 Back Bodice

- Trace back pattern.
- Place skirt curve on the shoulder dart leg and waist dart point and draw the princess line.
- Shift shoulder dart point to the styleline and redraw dart legs. (Broken line indicates original dart.)
- Crossmark dart points on styleline.

Figure 6

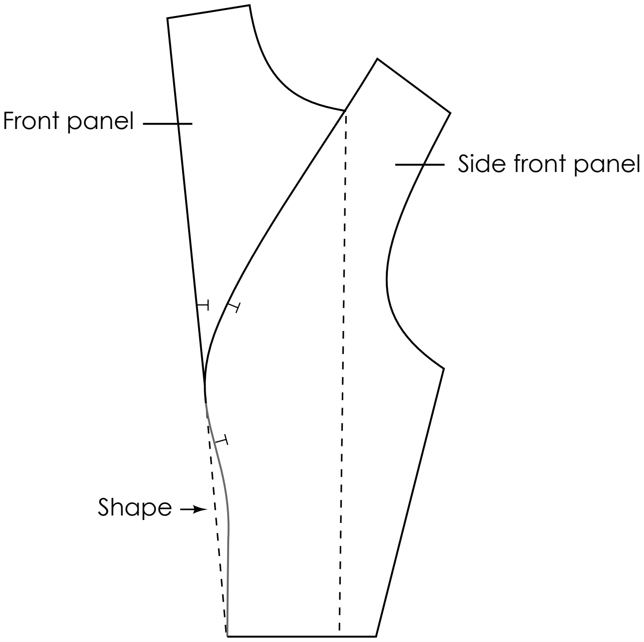


Figure 7

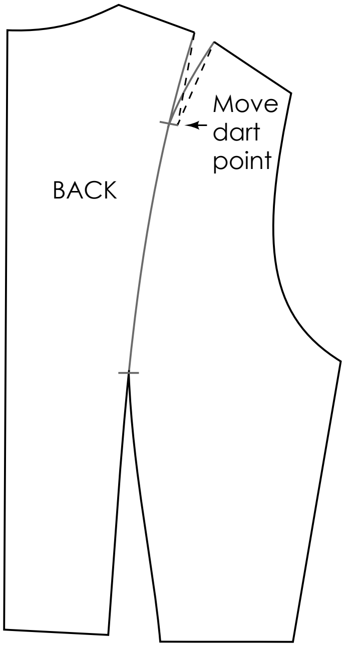


Figure 8

- Cut and separate pattern pieces.
- Front and back classic princess patterns are complete as seamless for use as a working pattern.

Figure 8

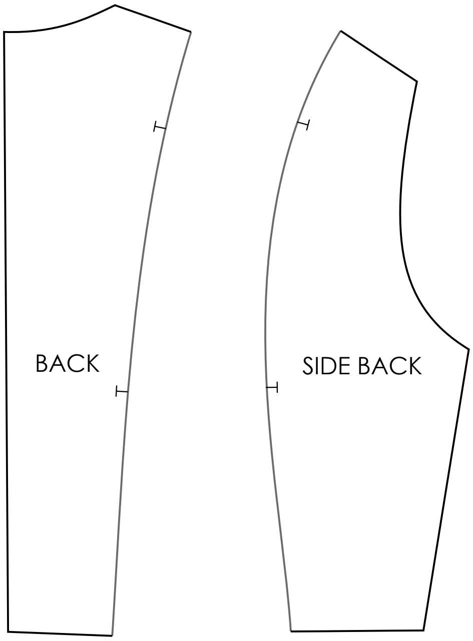
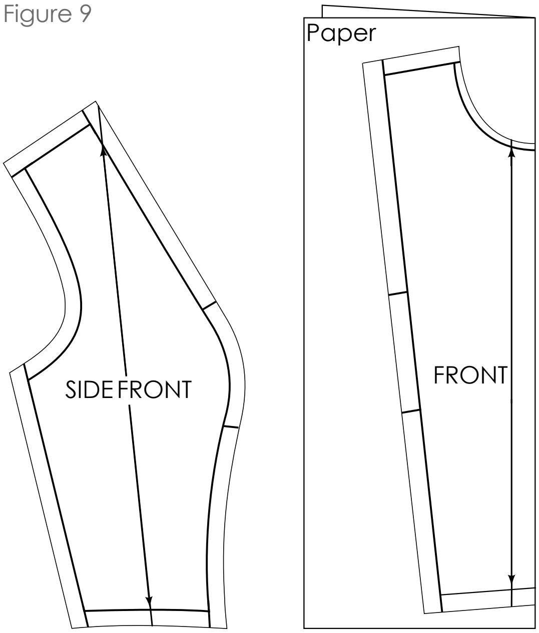


Figure 9 Completed Pattern

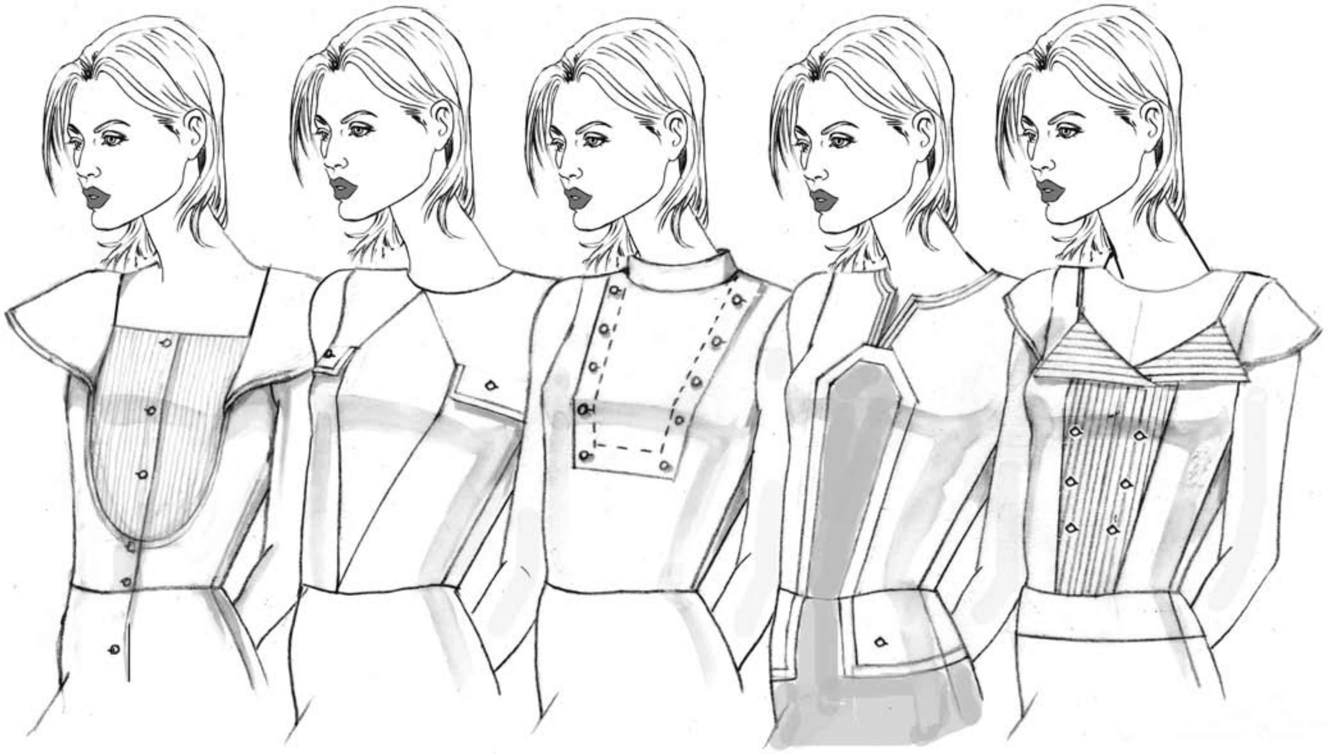
- Complete the pattern, as shown.
- Center grainlines on side panels.

Figure 9



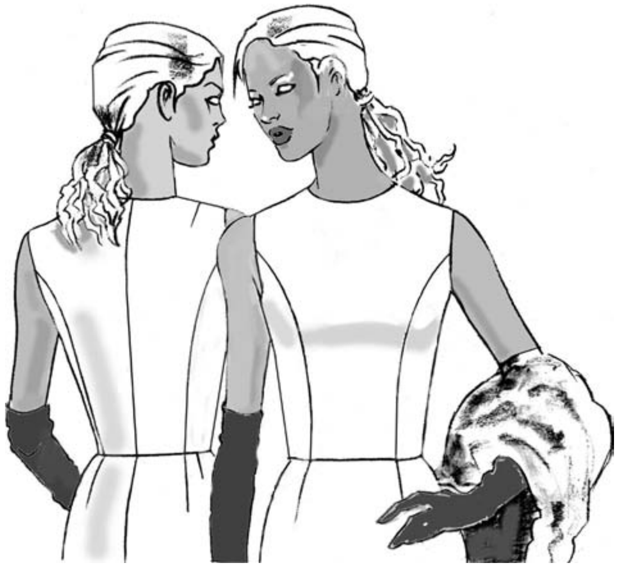
Classic Princess Styleline Variations

The following designs are based on the classic princess. Generate patterns for these designs or create other variations for practice. Use the classic princess if you are an advanced student, or develop the design from the basic pattern. Remember, draw stylelines on the pattern exactly as they appear on the design. The finished pattern shapes should result in perfect representations of each design. If they do not, locate the problem and try again.



Design 1 Design 2 Design 3 Design 4 Design 5

ARMHOLE PRINCESS STYLELINE



Design Analysis

The armhole princess design is a variation of the classic princess and features a styleline that curves from the bust point in front and the shoulder blades in back to about mid-armhole. The design is developed from a two-dart pattern with side dart transferred to mid-armhole as a curved dart (styleline).

Pattern Plot and Manipulation

Figure 1 Front

- Trace and cut front pattern.
- Draw line from waist and side dart points to bust. Crossmark 3/4 inch from bust point. Label X.
- Draw a straight guideline from bust point to mid-armhole. (Position can vary along armhole.)
- Mark 3/8 inch up at mid-point of guideline.
- Draw curved stylelines from mid-armhole to bust point. Extend dart legs from waist to bust point.
- Crossmark 2 inches above and below bust point for ease control notches.

Figure 2 Back

- Trace and cut back pattern. Transfer the shoulder dart excess to mid-armhole. It will be absorbed into the styleline.
- Draw a line 2 inches up from dart point of waist dart and crossmark for notch.
- Repeat styleline instructions, placing guideline from crossmark to mid-armhole.

Figure 1

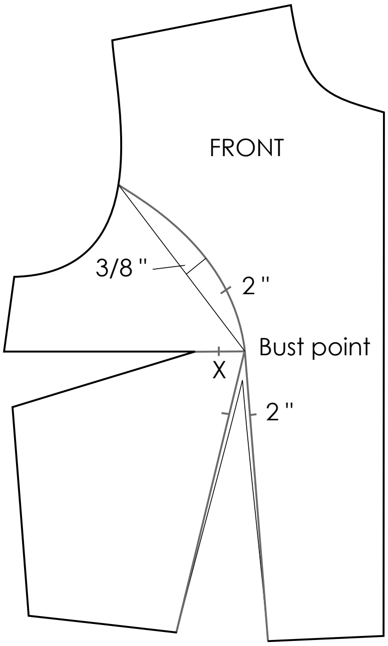


Figure 2

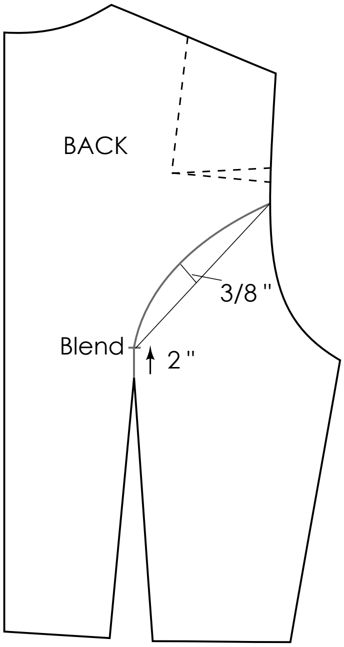


Figure 3 Front

- Cut and separate pattern along styleline.

Figure 3

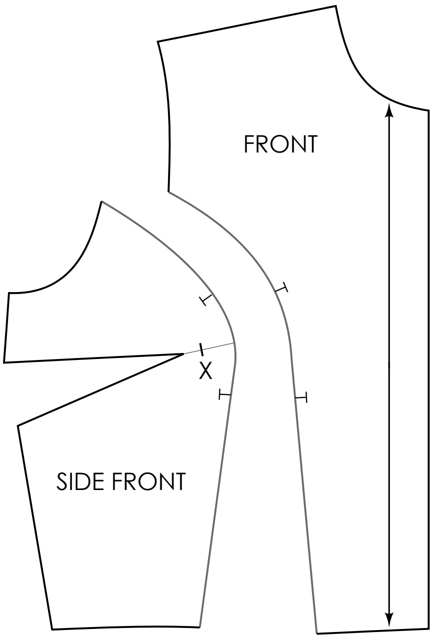

FRONT
SIDE FRONT
X

Figure 5 Back

- Cut and separate pattern along styleline.
- To remove dart excess from mid-armhole, draw the dart's length and width along styleline of back panel (broken line) and trim excess from the pattern.

Figure 5

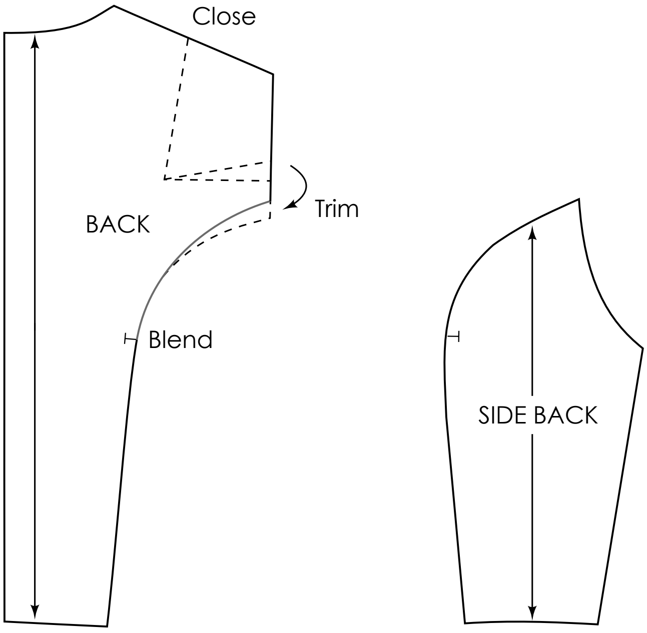

Close
Trim
BACK
Blend
SIDE BACK

Figure 4 Side Panel

- Complete the side panel using the princess instruction for shaping styleline (see Figure 4 in the section called Classic Princess Styleline earlier in this chapter).

Figure 4

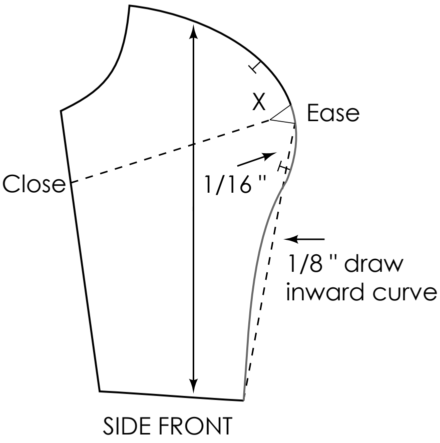
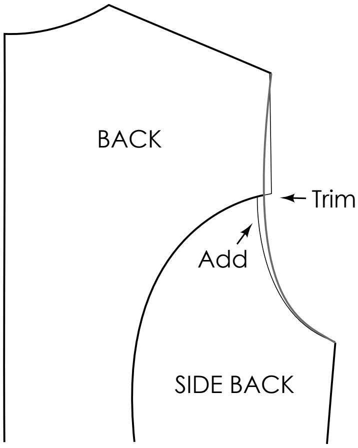

X
Ease
Close
1/16 "
1/8 " draw
inward curve
SIDE FRONT

Figure 6 Trueing and Blending

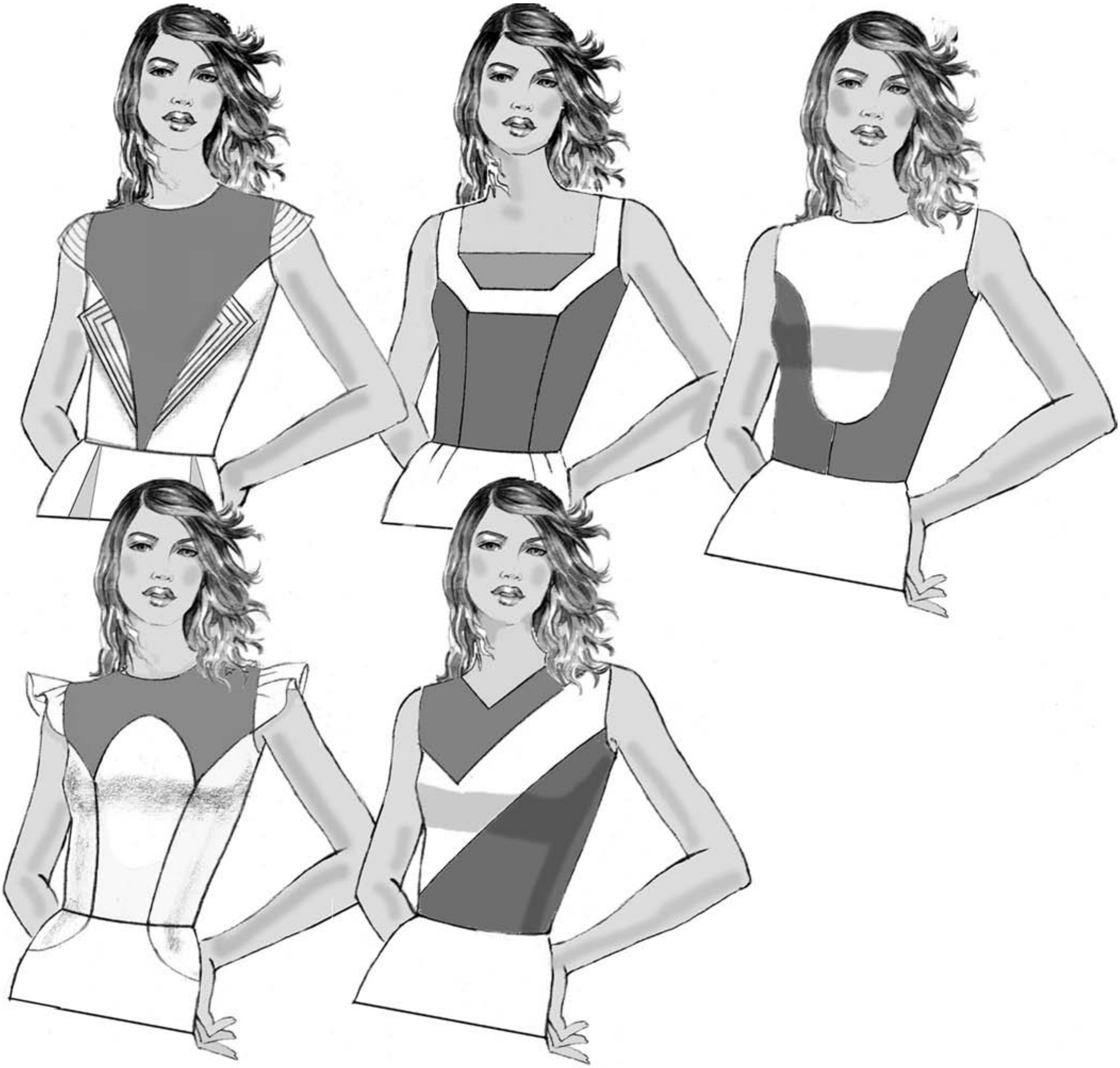
- True pattern panels, starting from styleline at waist and ending at armhole. If panels do not true at armhole, add paper to the shortened panel at armhole. Tape both sides securely.
- Blend armhole, adding to shorter side and trimming longer side equally, as shown.

Figure 6


BACK
Trim
Add
SIDE BACK

Armhole Princess Styleline Variations

The practice designs are based on the armhole princess. Design or create other variations. The finished pattern shapes should result in perfect representations of each design. If they do not, locate the problem and try again. When plotting the pattern, remember that lines are drawn on the working pattern exactly as they appear on the design. Develop the designs using the two-dart pattern. (Advanced students may want to use the armhole princess pattern.)



Design 1

Design 2

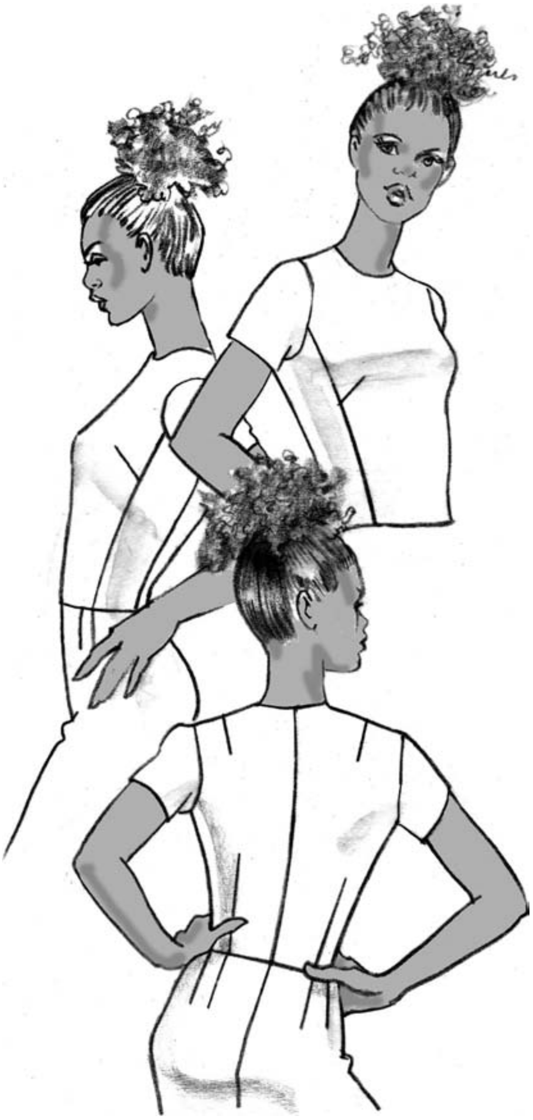
Design 3

Design 4

Design 5

PANEL STYLELINE

The panel styleline is *not* a dart equivalent because it does not pass through the bust point. The existing darts control fit of the garment.



Design Analysis

The panel styleline extends from the waist to mid-armhole of the front and back bodice without passing through bust point. A short side dart intercepts the panel styleline. The panel styleline can be varied to create other designs.

Pattern Plot and Manipulation

Figures 1 and 2

- Trace front and back two-dart patterns and all markings.
- Trace front and back patterns.
- Draw slash lines to bust point.
- Mark mid-armhole location.
- Draw panel stylelines from waist and end 1/2 inch from front and back mid-armhole.
- Draw a curved line to the armholes.

Figure 1

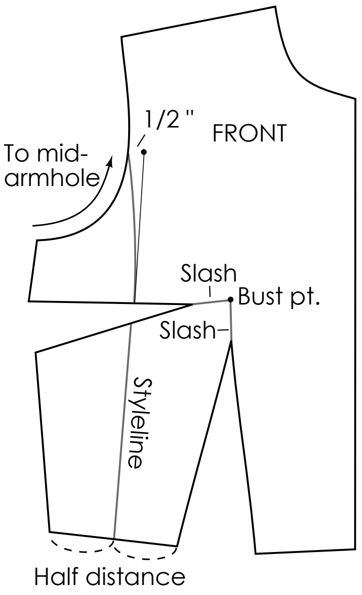

1/2 "
FRONT
To mid-armhole
Slash
Bust pt.
Slash
Styleline
Half distance

Figure 2

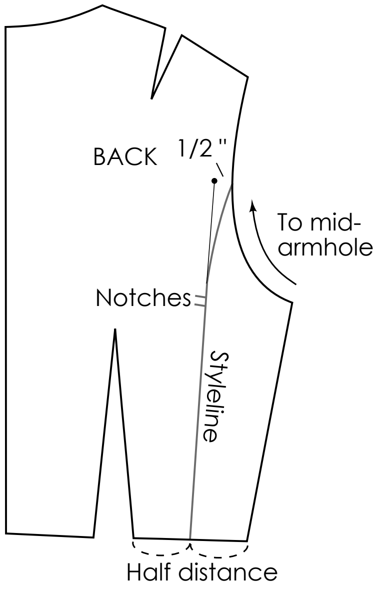

BACK
1/2 "
To mid-armhole
Notches
Styleline
Half distance

Figure 3

- Separate back pattern pieces along styleline.
- Draw 1-inch extension at center back.

Figure 3

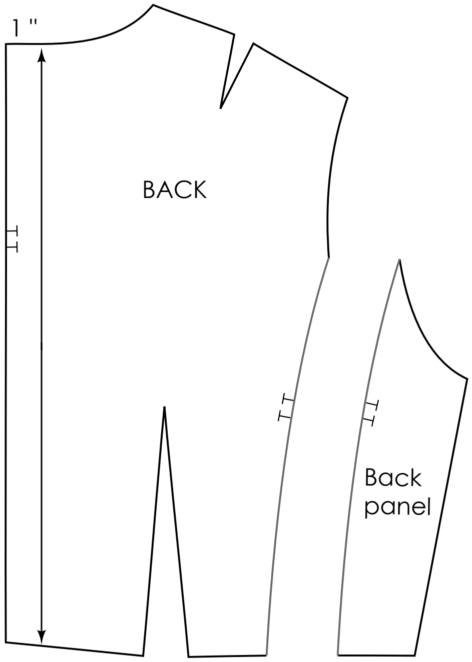

1 "
BACK
Back
panel

Figure 4

- Separate front pattern along styleline.
- Close dart legs on front side panel and notch at the location.
- Close dart legs on front side panel. Complete dart leg, as shown.

Figure 4

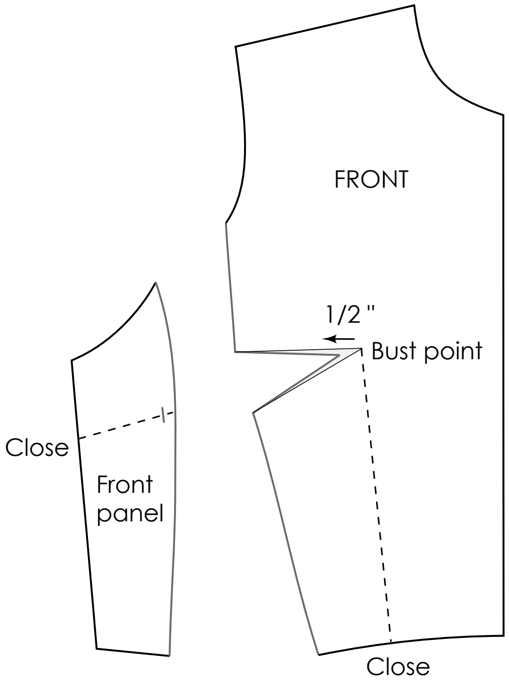
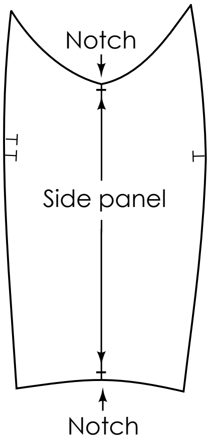

FRONT
1/2 "
Bust point
Close
Front
panel
Close

Figure 5

- To eliminate the side seam, place the front and back panels together and tape.
- Extend the grainline through the center of the panels.
- Mark notches at waist and armhole.
- Complete pattern for test fit.

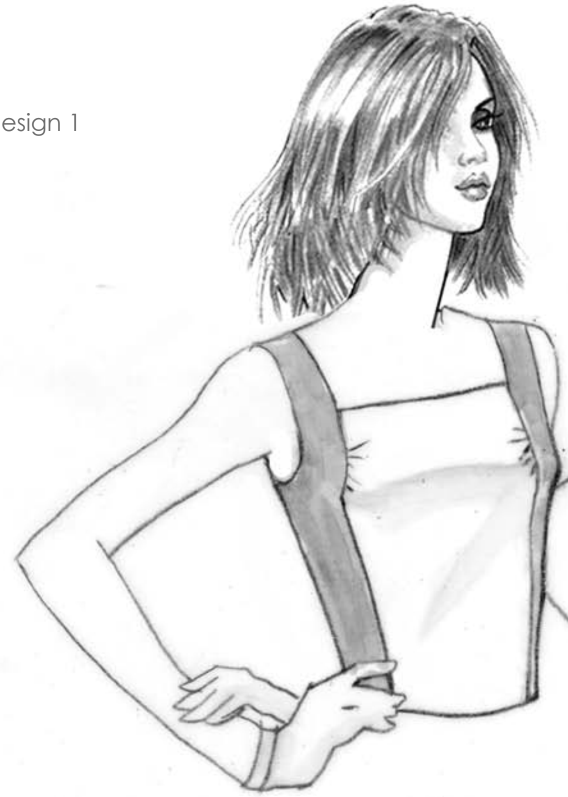
Figure 5


Notch
Side panel
Notch

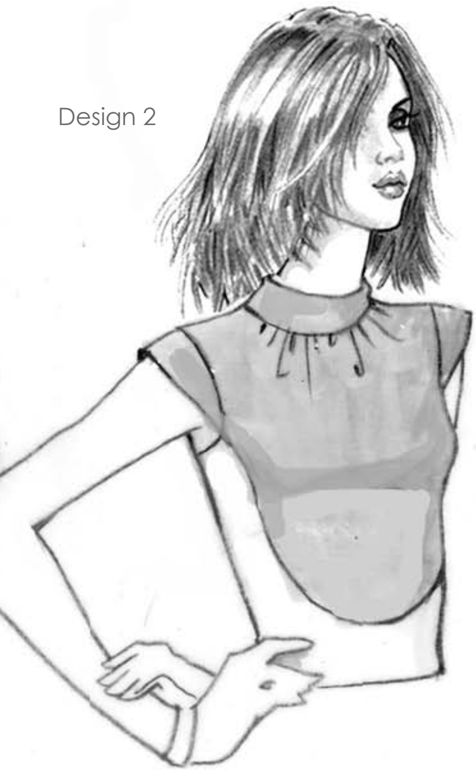
Panel Styleline Variations

The practice designs are based on the panel pattern. Generate patterns for the designs or create other variations using the basic pattern. Advanced patternmakers may use the panel pattern to develop the design. When plotting, draw stylelines exactly as they appear on the design. The finished pattern shapes should result in perfect representations of each design. If they do not, locate the problem and try again.

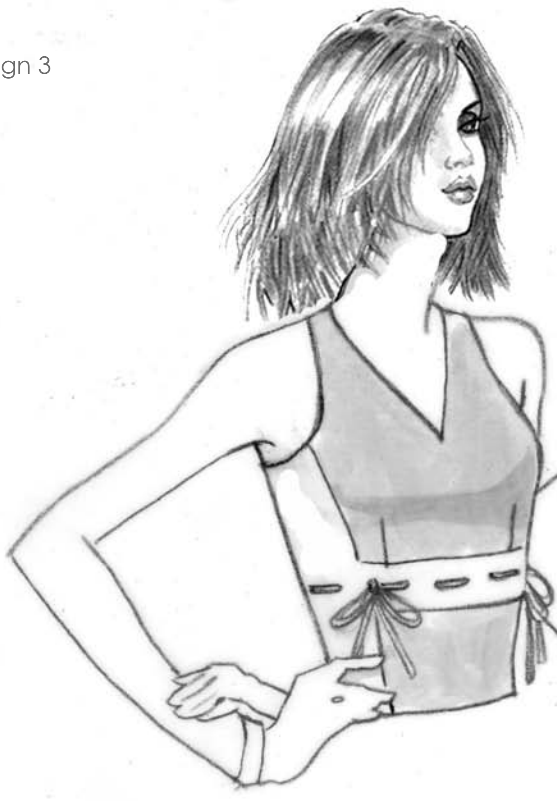
Design 1



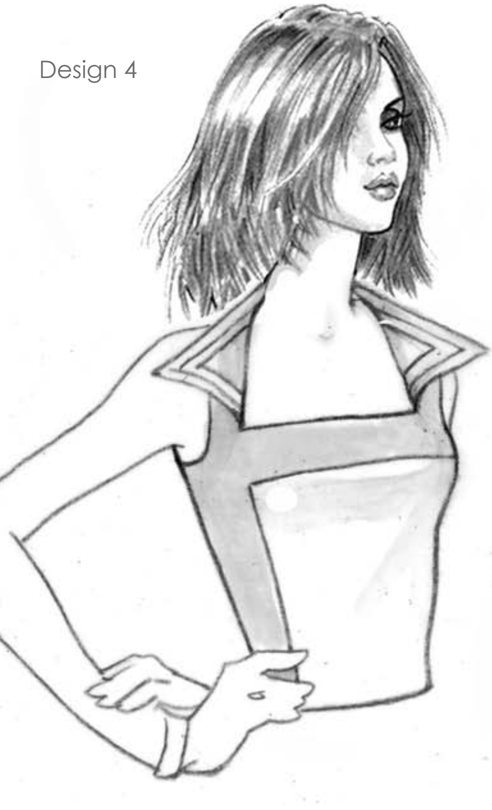
Design 2



Design 3



Design 4



FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Special Information

Set form to desired height and measure the following:

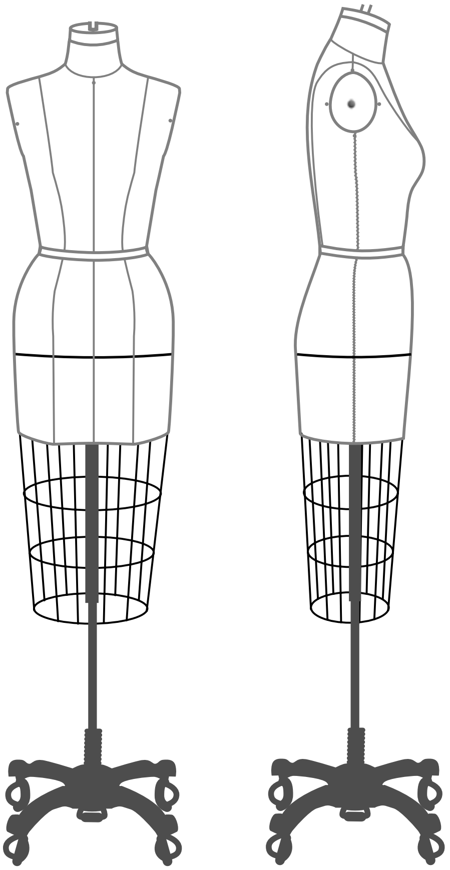
C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

*Measuring the Arm

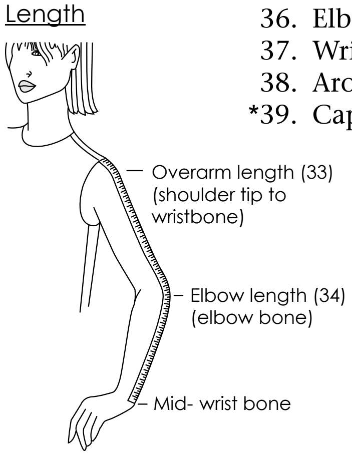
Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

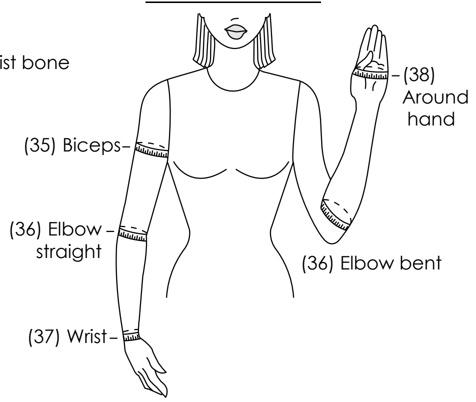
Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____


Length
Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone


Circumference
(38) Around hand
(35) Biceps
(36) Elbow straight
(36) Elbow bent
(37) Wrist

This page intentionally left blank

Added Fullness

From Chapter 7 of *Patternmaking for Fashion Design,* 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

Added Fullness

(Principle #2)

ADDED FULLNESS: PRINCIPLE #2
  Three Types of Added Fullness
  Identifying Added Fullness
  Fullness on the Princess Line
  Fullness at a Semi-Yoke Above Bust
  Added Fullness to a Dart Leg
  Gathers on a Style Dart
  Fullness to Insets
  Added Fullness Design Variations
BLOUSON FOUNDATION
  Modified Blouson
  Blouson with Increased Fullness

ADDED FULLNESS: PRINCIPLE #2

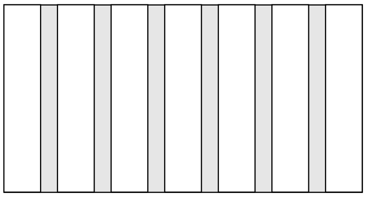
Principle. To increase fullness in a garment to an amount greater than the dart excess provides, the length and/or width within the pattern's frame must be increased by slashing and spreading where fullness is needed.

Corollary. Adding to the outside of the pattern's frame increases the amount of fabric in a garment and can change the silhouette.

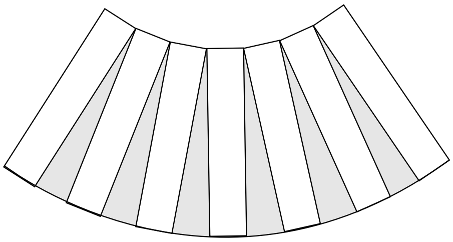
Three Types of Added Fullness

To add fullness, the working pattern is increased in one of three ways:

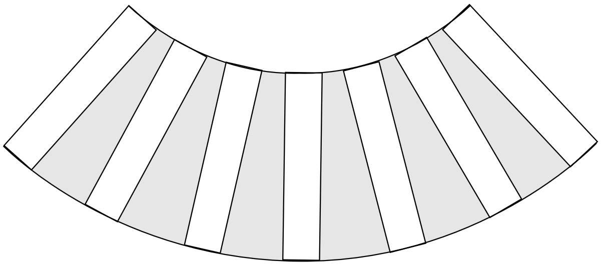
Equal fullness. Opposite sides of a pattern are spread equally, increasing fullness to top and bottom.

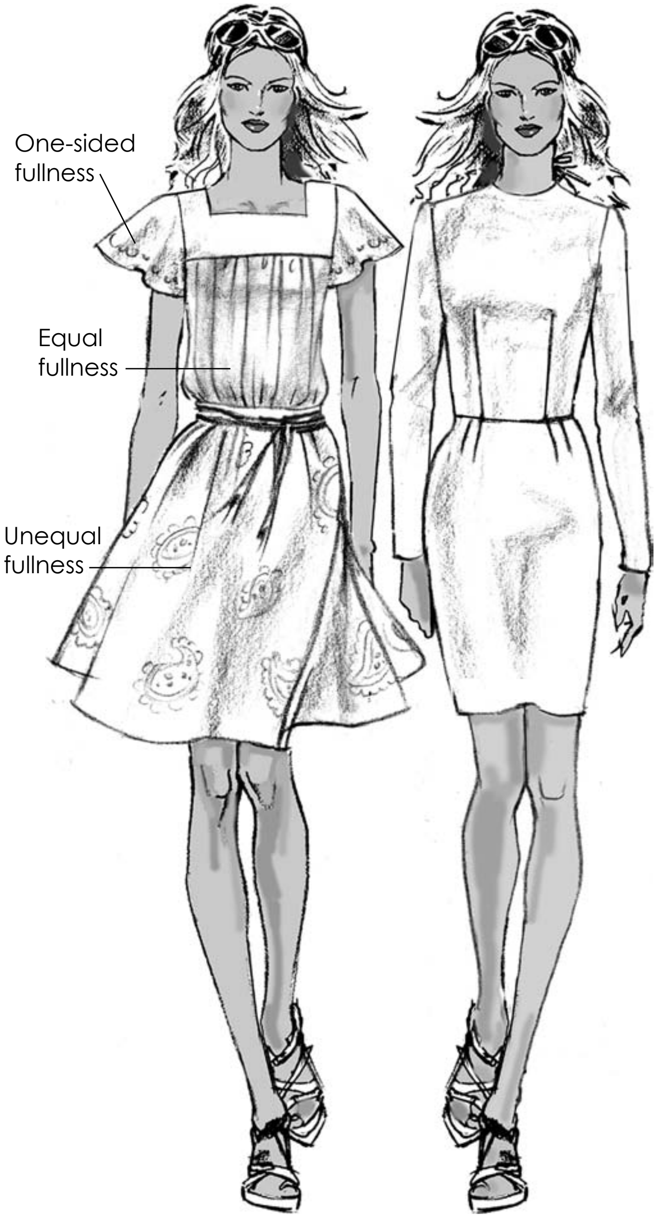


One-sided fullness. One side of a pattern is spread to increase fullness, forming an arc shape at the top and bottom.



Unequal fullness. One side of the pattern is spread *more* than the other, forming an arc shape at the top and bottom.





Compare the silhouette differences between the design and the basic garment when adding fullness.

Identifying Added Fullness

Fullness from the basic dart is always directed to the bust. Therefore, designs can be identified as having added fullness if fullness passes through the length or width of the garment (Figure 1), when fullness is directed away from the bust (Figure 2), and when the garment extends beyond the outline of the figure (Figure 3). Fullness may appear in the form of gathers, pleats, drape, cowls, or flares. Fullness can be on the horizontal or vertical, or at an angle, and can be developed as equal, unequal, or one-sided fullness. The dart may become part of added fullness when needed.

Added fullness may be combined with Dart Manipulation (Principle #1) and Contouring (Principle #3).

The patternmaker determines the type of fullness required by the way the sketch is rendered. When the patternmaker is unsure of the designer's intent, it is best to ask before developing the pattern.

Method for Plotting the Pattern for Added Fullness

Added fullness is plotted as a series of straight slash lines drawn across the pattern in the direction the fullness appears on the design (horizontally, vertically, or on an angle). When preparing the pattern, the beginning and end of each slash line depend on where the fullness begins and ends on the design. The dart excess is often absorbed into the added fullness.

Formula for Adding Fullness

To determine the amount of added fullness desired, give consideration to the fabric type. Light-weight and loosely woven fabrics (cottons and chiffons, for example) may require more fullness than bulky, closely woven fabrics. Using a 26-inch waist as an example, added fullness may equal:

- One and one-half times the measurement (26″ + 13″ = 39″)
- Two times the measurement (26″ + 26″ = 52″)
- Two and one-half times the measurement (26″ + 26″ + 13″ = 65″)

To help train the eye in visualizing different amounts of fullness, make examples, using 10 inches as the measure to be increased. Follow the formula for each example. The finished length of each sample should be 10 inches. Save the examples for use when determining fullness.

Figure 1

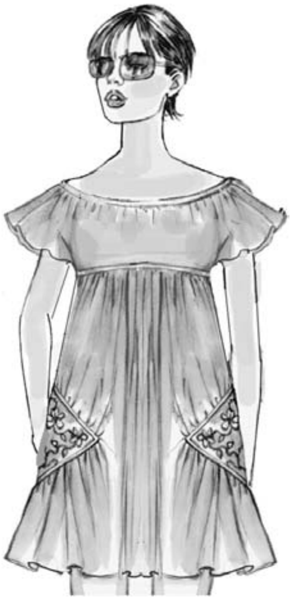


Figure 2

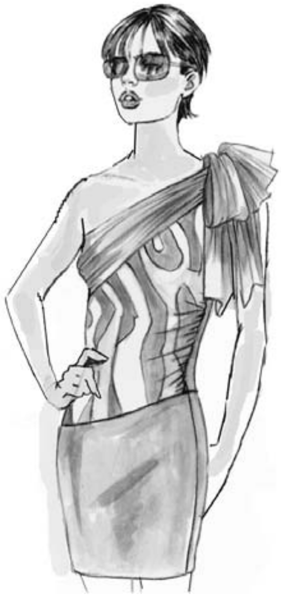
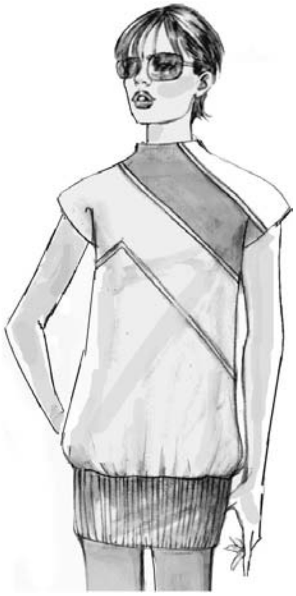
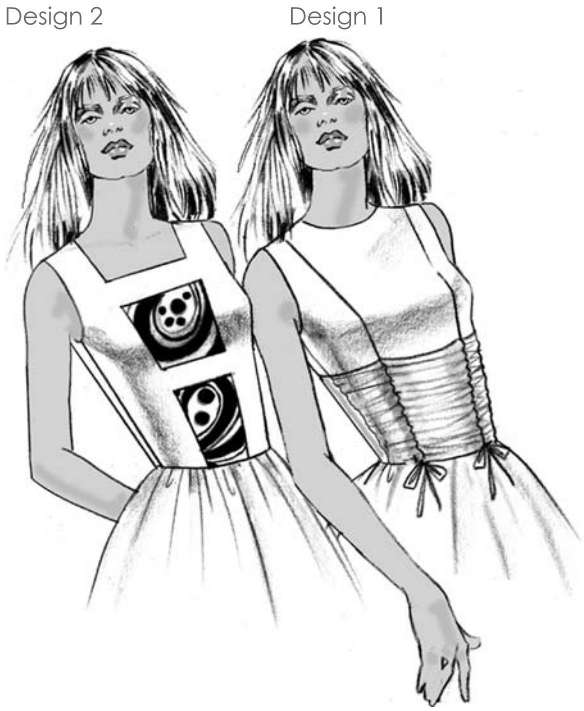


Figure 3



Fullness on the Princess Line


Design 2
Design 1

Design Analysis: Design 1

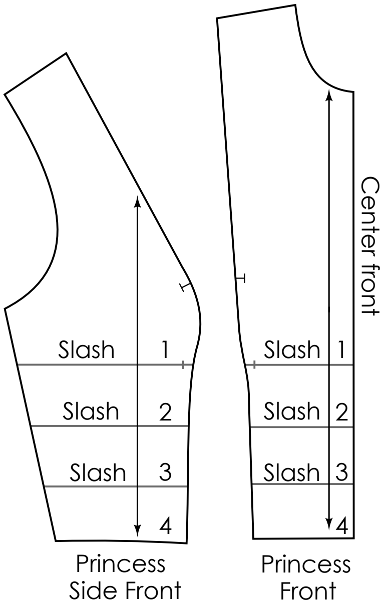
The princess is gathered on each side of styleline from waist to under bust and at front side seam, indicating parallel fullness. Design 2 is for practice.

Pattern Plot and Manipulation

Figure 1

- Trace front and side front princess panels. Include grainline. The basic back is not illustrated.
- Draw slash lines where the gathers indicate. Number each section and cut from paper.

Figure 1


Slash 1
Slash 2
Slash 3
4
Princess Side Front
Slash 1
Slash 2
Slash 3
4
Center front
Princess Front

Figures 2, 3

- Draw grain guidelines on paper.
- Cut through slash lines separating patterns.
- Place cut pattern parts on paper with center front on fold. Match grainline of pattern with guideline. Spread equally using the ratio 1 1/2:1 or 2:1 (shaded area). Secure pattern parts.
- Trace outline of pattern and blend styleline. Draw grainline and complete for test fit.

Figure 2

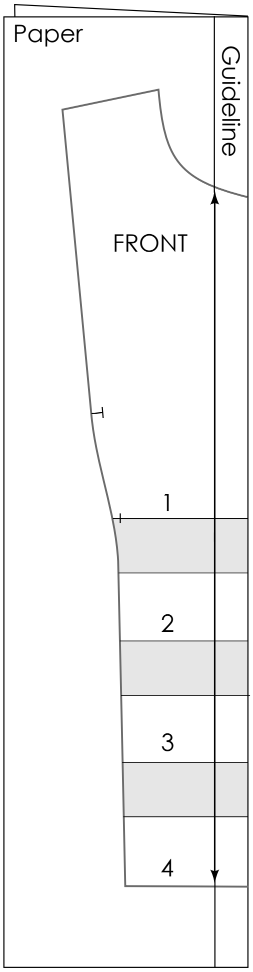
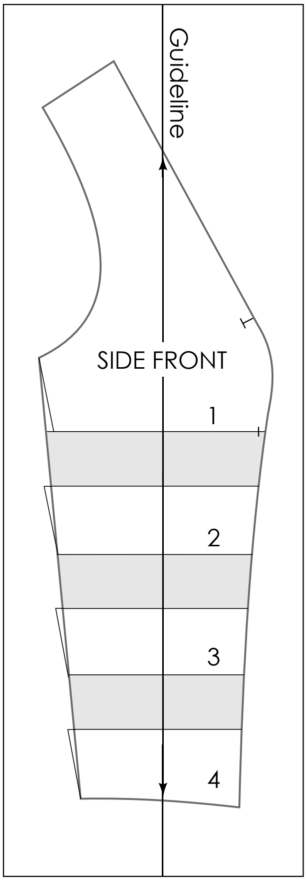
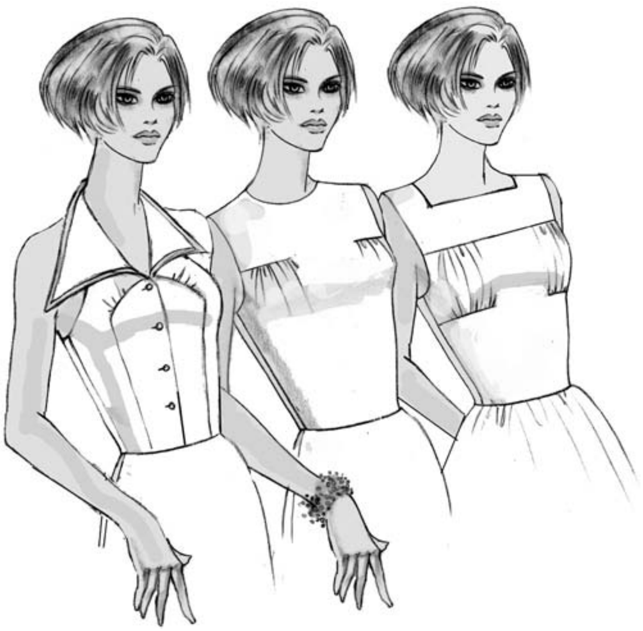

Paper
Guideline
FRONT
1
2
3
4

Figure 3


Guideline
SIDE FRONT
1
2
3
4

Fullness at a Semi-Yoke Above Bust

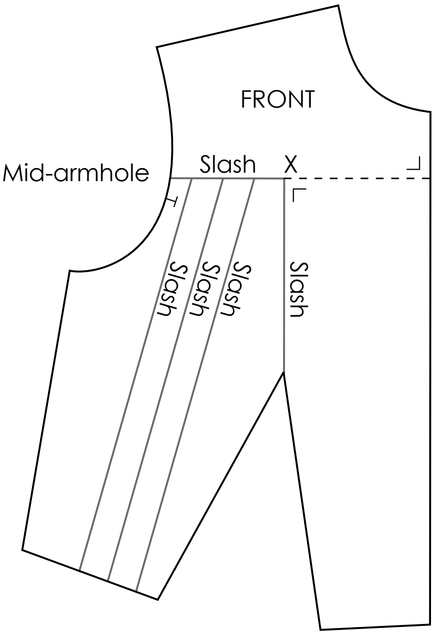
Design 1 Design 2 Design 3



Design Analysis

A short styleline above the bust of Design 2 controls gathers that end at mid-armhole. One-sided fullness is indicated. Designs 1 and 3 are is given for practice.

Figure 1



Pattern Plot and Manipulation

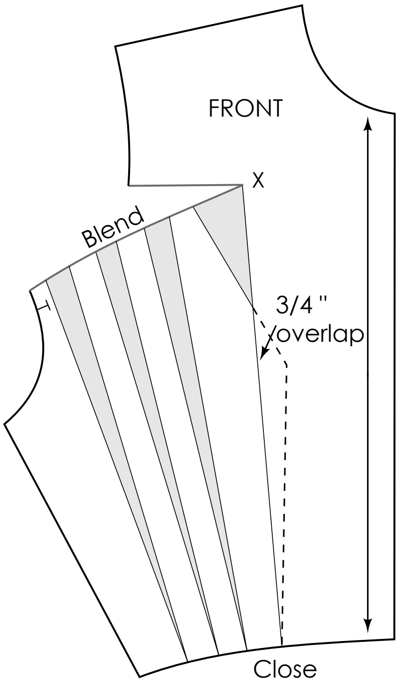
Figure 1

- Trace front bodice.
- Square from center front to mid-armhole.
- Square a slash line to dart point. Label X.
- Draw slash lines in the direction fullness falls and cut pattern from paper.

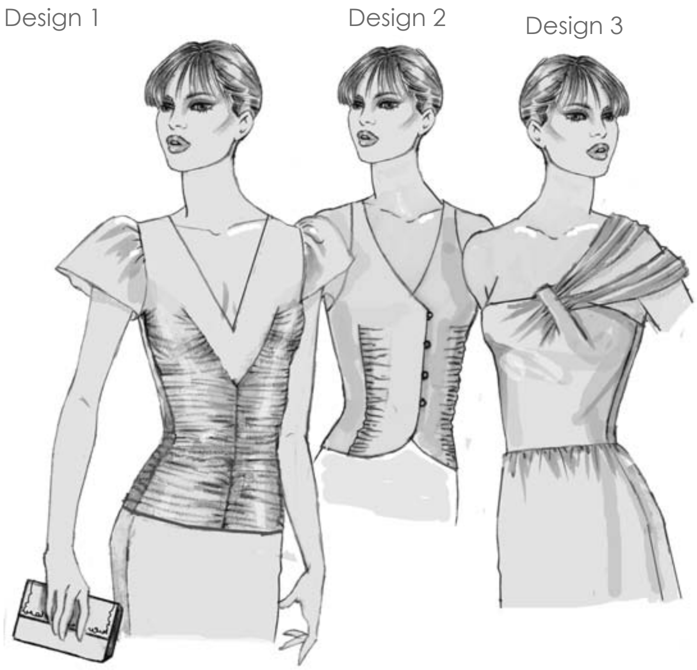
Figure 2 (Added Fullness and Dart Excess Interact)

- Cut from mid-armhole to point X and from bust point to point X, separating pattern.
- Close waist dart, overlapping dart point 3/4 inch. Fullness created by the spread areas next to bust compensates for any loss of measurement due to overlap.
- Cut remaining slash lines to, not through, waist.
- Place on paper and spread each slash 3/4 inch.
- Trace pattern's outline and blend.
- Draw grainline and complete for test fit using basic back pattern.

Figure 2



Added Fullness to a Dart Leg


Design 1
Design 2
Design 3

Design Analysis: Design 1

Analyze the design and plot of the patterns.

Pattern Plot and Manipulation

Figures 1a, b

- Remove dart excess from shoulder.
- Plot the front and back design as indicated.
- Trim excess. Back-trim shoulder

Figure 1a

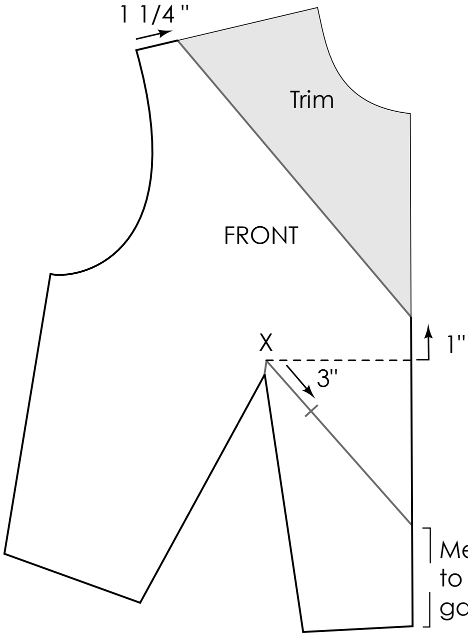

1 1/4"
Trim
FRONT
X
3"
1"
Measure to secure gathers

Figure 1b

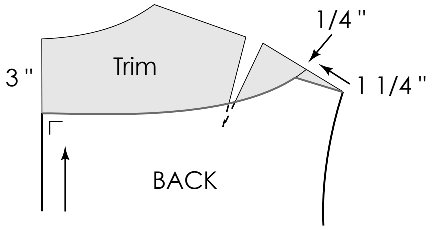

1/4"
3"
Trim
1 1/4"
BACK

Figure 2

- Slash dart legs to bust point. Close waist dart.
- Dart leg is shaped to contour the bust.
- Cut pattern from paper. Draw slash lines.

Figure 2

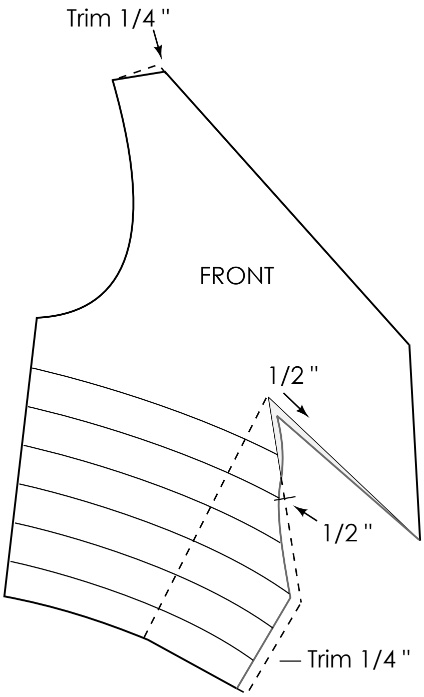
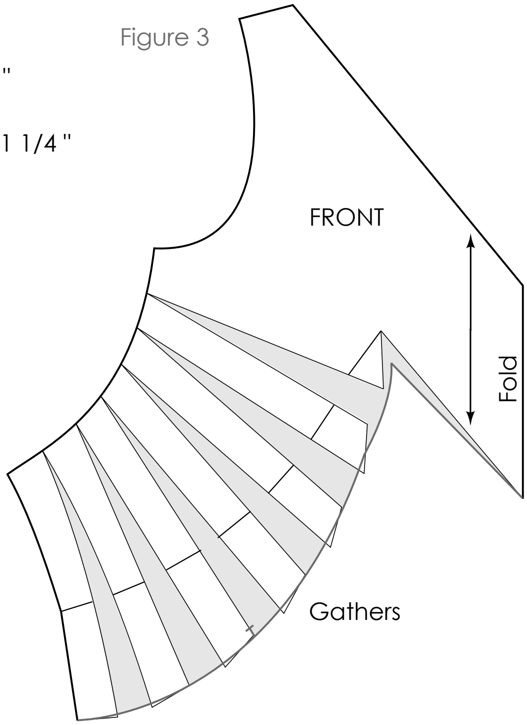

Trim 1/4"
FRONT
1/2"
1/2"
Trim 1/4"

Figure 3

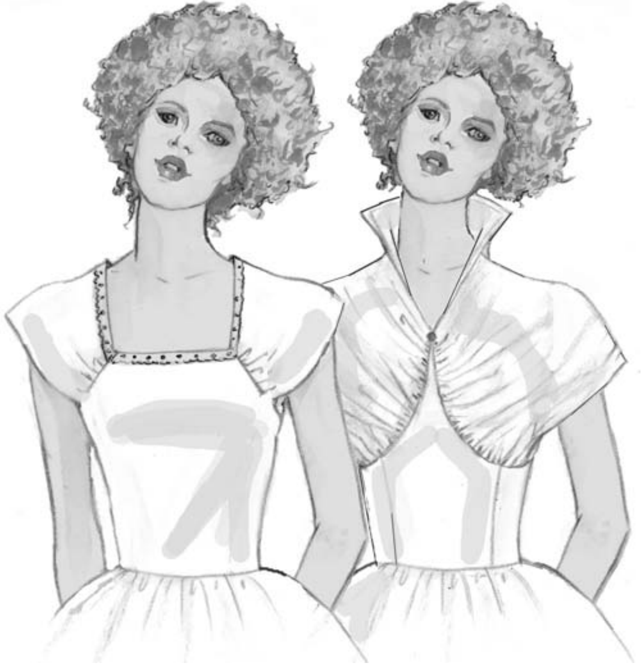
- Cut slash lines to, not through, side seam.
- Spread a 2:1 ratio (trace and blend).

Figure 3


FRONT
Fold
Gathers

Gathers on a Style Dart

Design 1 Design 2



Design Analysis: Design 1

The bust point is 1 inch from the original location. The gathers are directed away from the bust (one-sided added fullness). Design 2 is for practice.

Pattern Plot and Manipulation

Figure 1

- Trace front pattern and redraw curved dart leg 1 inch from bust point.
- Square a line from center front 3 1/2 inches up from bust level that equals bust span.
- From this point draw a curved dart leg to dart point, and to the shoulder 1 1/4 inch from neck.
- Extend shoulder 1 1/4 inch and draw a curve line passing through mid-armhole to the styleline.
- Draw slash lines and trim shaded area of the neckline.

Figure 2

- Cut style dart to shifted bust point and close waist dart. (One dart leg will not meet the waistline.) Blend waist at the finish of the pattern.
- Cut slash lines to, not through, shoulder.
- Spread slash lines to a ratio of 2:1.

Figure 3

- Trace the back pattern. Draw and trim the neckline. Extend shoulder 1 1/4 inch.
- Complete the patterns for a test fit.

Figure 1

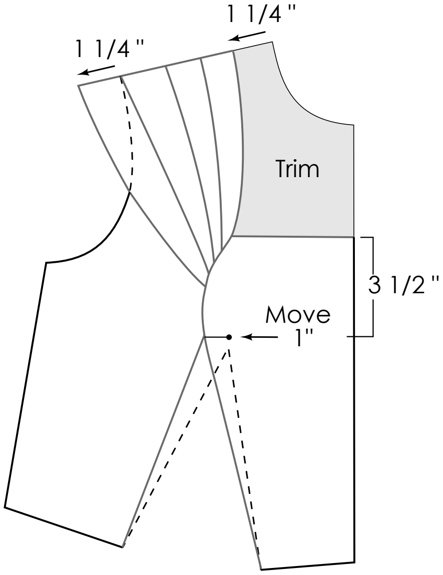


Figure 2

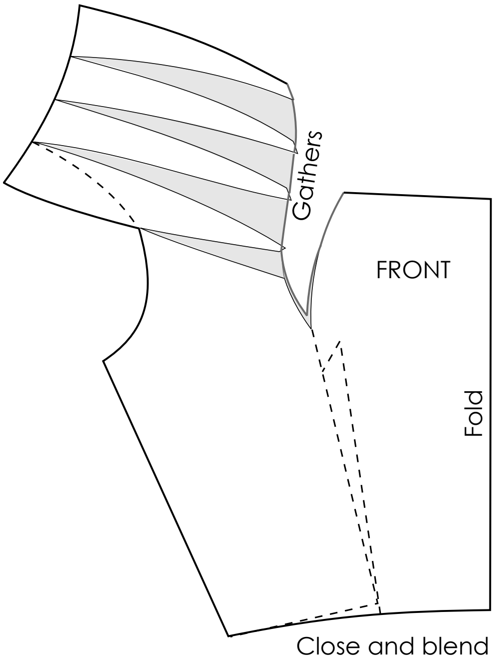
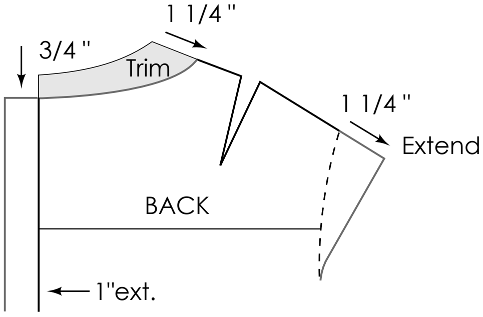
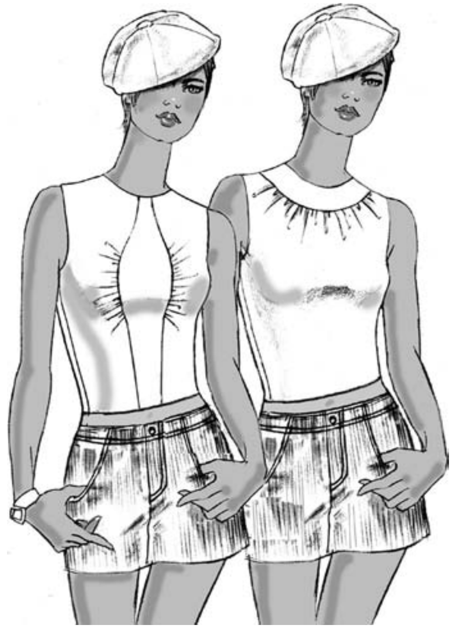


Figure 3



Fullness to Insets


Design 1
Design 2

Design Analysis: Design 2

Gathers follow the edge of the inset band. Dart excess (gathers) is directed to bust level. The remaining gathers indicate one-sided added fullness.

Pattern Plot and Manipulation

Figure 1

- Trace front pattern.
- Draw inset band 1 1/2 inches wide.
- Draw three slash lines from bust to band 2 inches up from center front. Notch.
- Draw other slash lines as indicated.
- Cut pattern from paper.

Figure 1

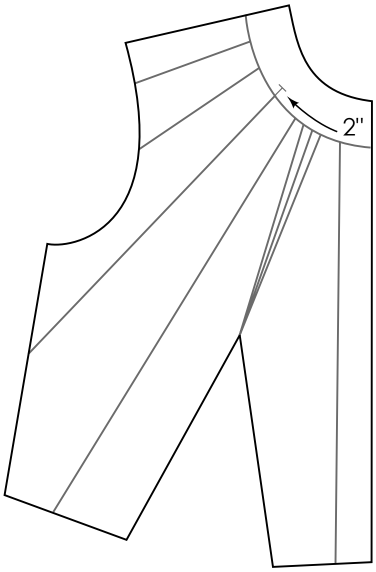
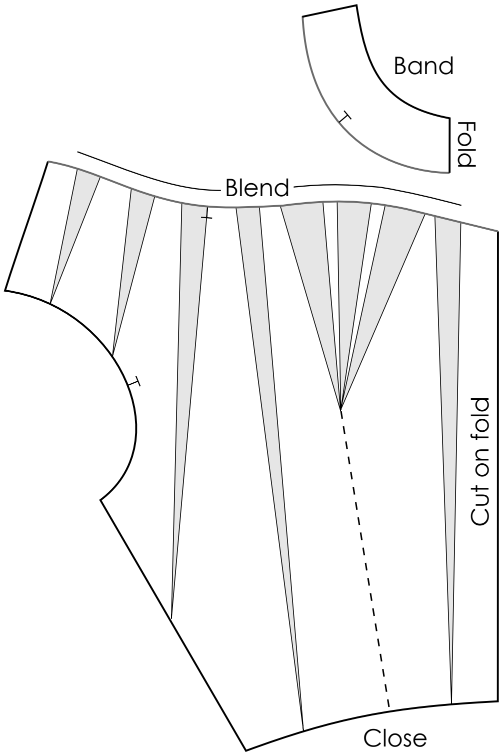


Figure 2

- Cut inset band from pattern.
- Cut slash lines to, not through, pattern's outline or bust point. Close dart legs.
- Spread added fullness as desired.
- Trace and blend the spread area.

Figure 2


Band
Fold
Blend
Cut on fold
Close

Figures 3a and b

Back: Trace back and draw inset band.

- Extend 1 inch at center back.
- Separate patterns, draw grainline, mark notches and complete the patterns for a test fit.

Figure 3a

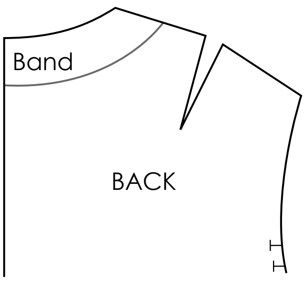
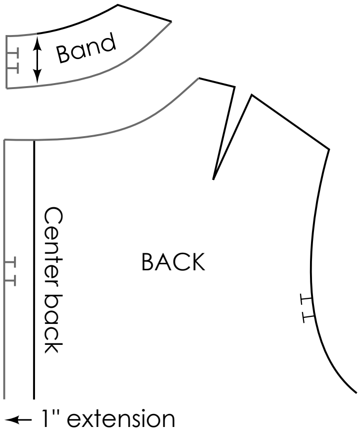
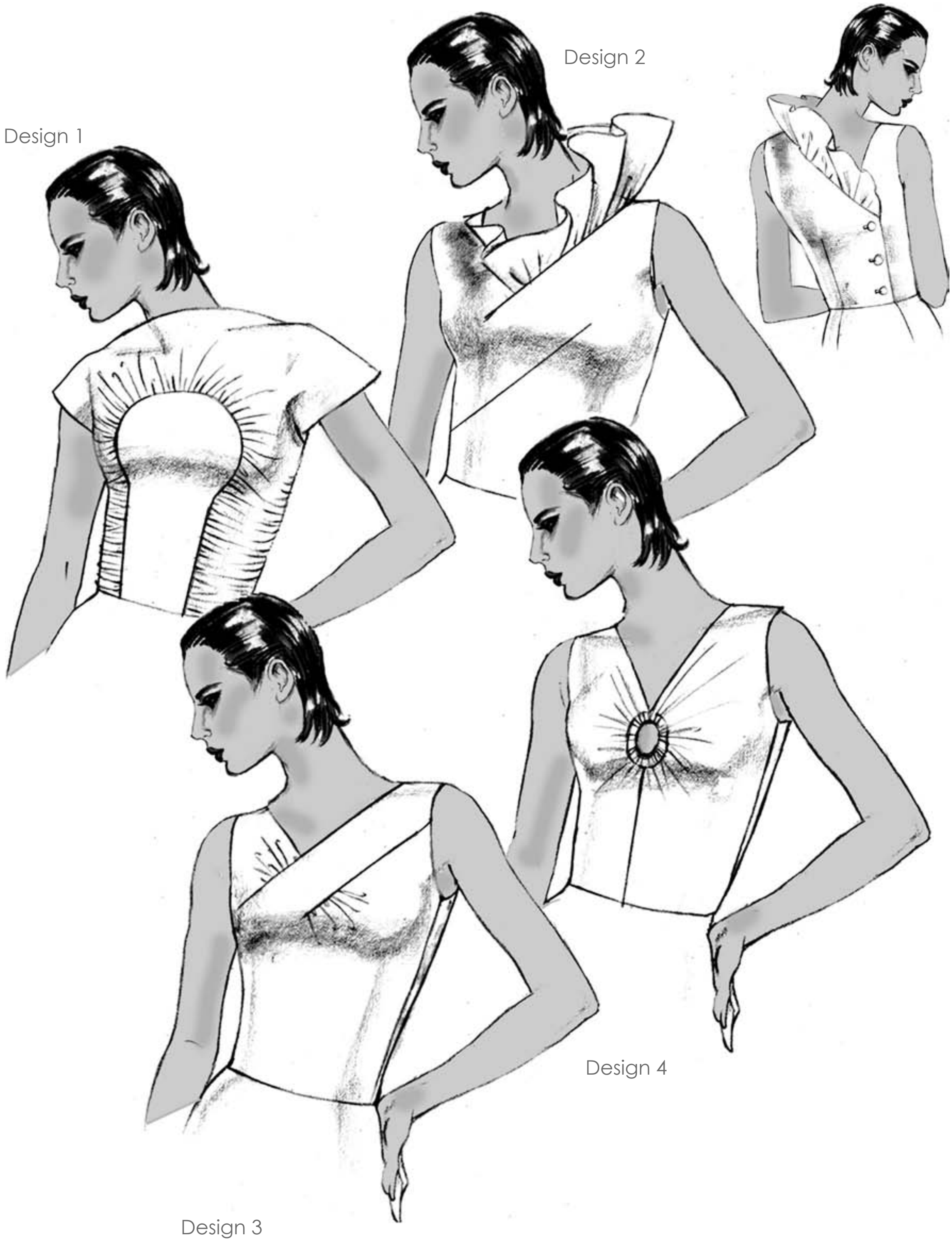

1 1/2 "
Band
BACK

Figure 3b


Band
Center back
BACK
1" extension

Added Fullness Design Variations

The practice designs are based on added fullness. Develop patterns for each design, or design other variations for practice. Which design requires an add-on for fullness? The finished garment should look like the design. If it does not, locate the problem and try again.



BLOUSON FOUNDATION

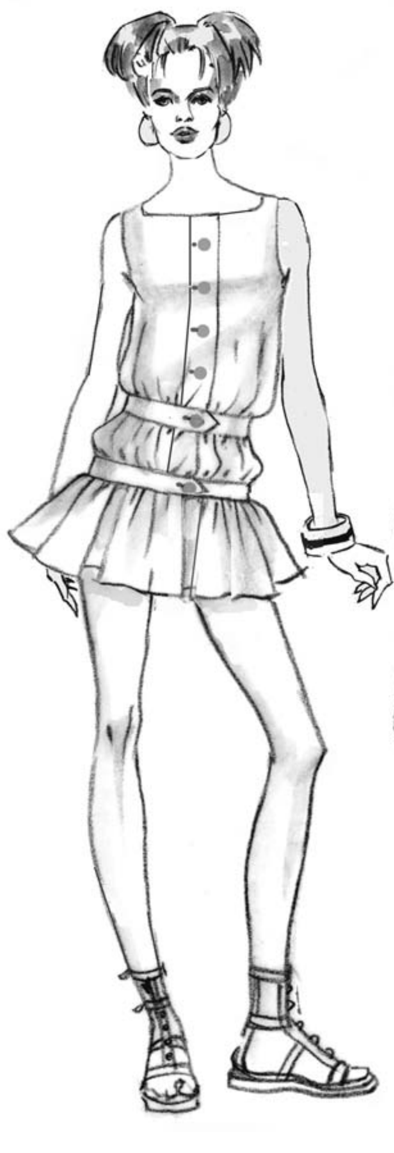
A blouson is a billowy-topped garment with an overhang anywhere from below the bust to the ankle. The blousing is controlled (held in place) by one of the following methods:

- Lining cut shorter than the finished length of the outer part (Design 3).
- Belt secures blouson to waist (Design 1).
- Casing accommodates elastic or drawstring (within the garment's frame).
- A band, attached below the separate blouse measuring less than hip measurement (Design 2).

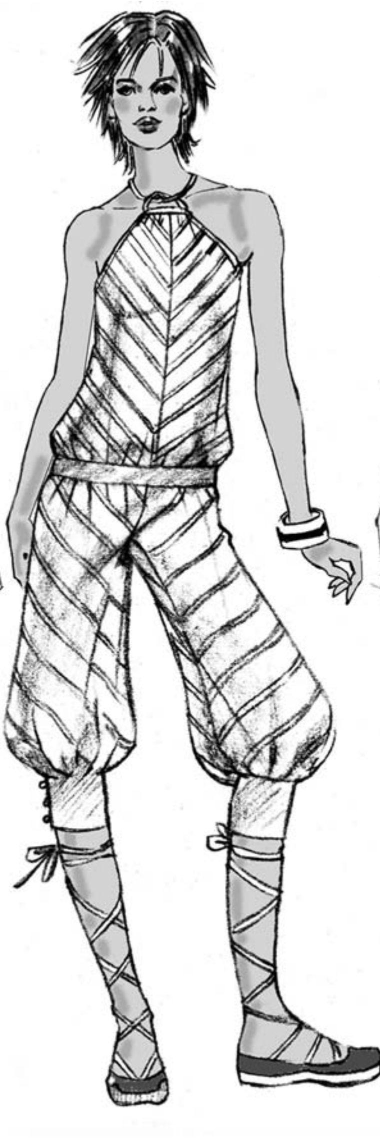
The blouson foundation is developed by adding length and width to the pattern within its frame and at its outline. This is an application of Principle #2, combined with manipulation of the existing dart excess (Principle #1). To determine the amount of length added for the overhang, add twice the amount desired. For example, for a 1 1/2-inch overhang, add 3 inches to the existing length.

Blouson Designs 1, 2, and 3 are but a few examples of this style. Design 1 illustrates modified fullness. Included is a method for increasing fullness. Designs 2 and 3 are practice designs.

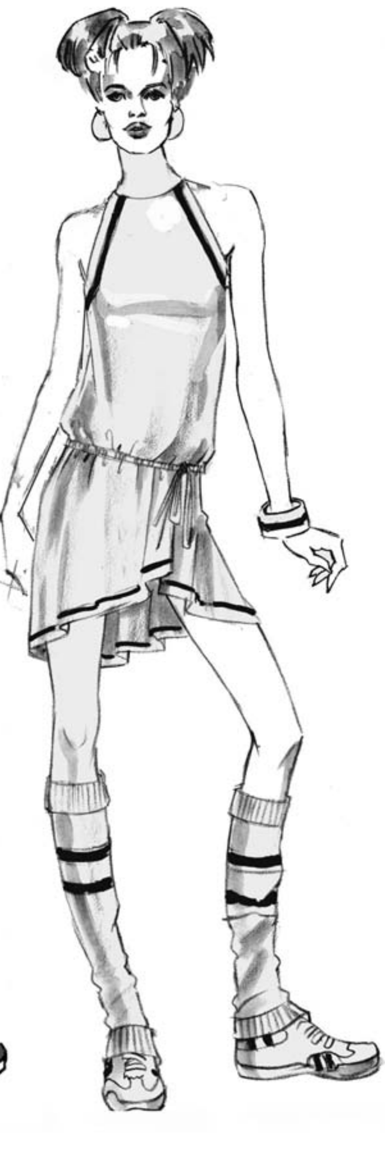
Design 1



Design 2



Design 3



Modified Blouson

Pattern Plot and Development

Figures 1 and 2

- Trace front two-dart pattern and back.
- Measure down 1 1/2 inches or more from front and back waistline. Draw a parallel line across the hem for overhang, creating a blouson effect.
- Square up from hem to armhole.
- Measure out 1 1/2 inches or more at front and back side seams. Draw line from hem to armhole. To true side dart of front, fold dart and draw line from hem to armhole.
- Complete pattern for test fit.

Figure 1

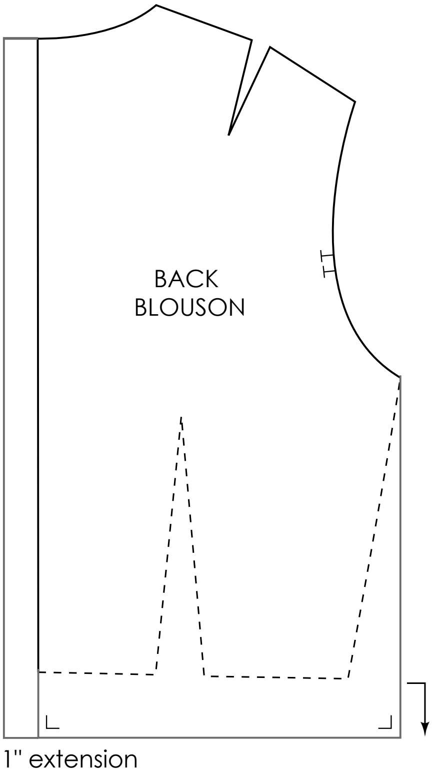
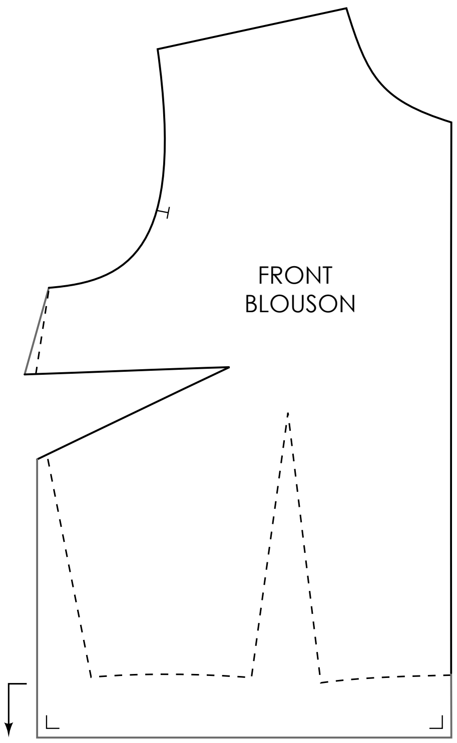

BACK
BLOUSON
1" extension

Figure 2


FRONT
BLOUSON
1 1/2 " for 3/4 " blouson

Blouson with Increased Fullness

Pattern Plot and Manipulation

Figures 1 and 2

- Trace front and back patterns. Include the back horizontal balance line (HBL). Add to preferred length.
- Draw slash lines from front and back waist to approximately 3 inches up from armhole curve (Figure 1).
- Draw slash line from dart points of waist and shoulder darts to a joining point at the back HBL (Figure 2).

Figures 3 and 4

- Cut slash lines to, not through, armhole (front) and pivotal point (back).
- Close back shoulder dart.
- Place patterns on paper and spread slash sections 1 1/2 inches (varies). Secure pattern and trace.
- Add 1 inch at the side seam of back pattern to balance the fullness between back and front.
- Add desired length (example: 2 inches below waist for 1-inch overlay).
- Complete pattern for test fit.

Figure 1

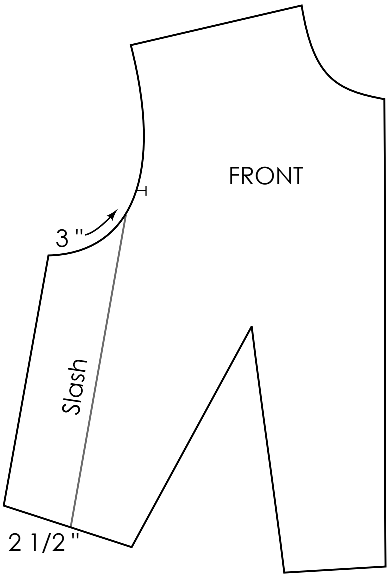

FRONT
3 "
Slash
2 1/2 "

Figure 2

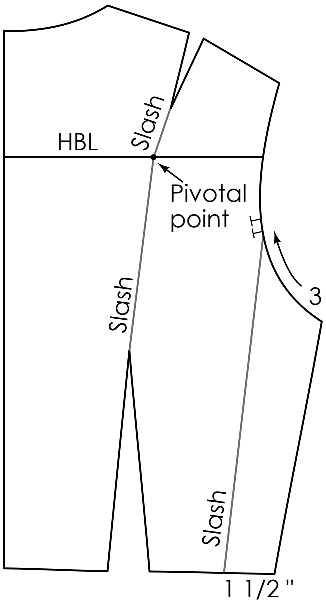

HBL
Slash
Pivotal point
3 "
Slash
Slash
1 1/2 "

Figure 3

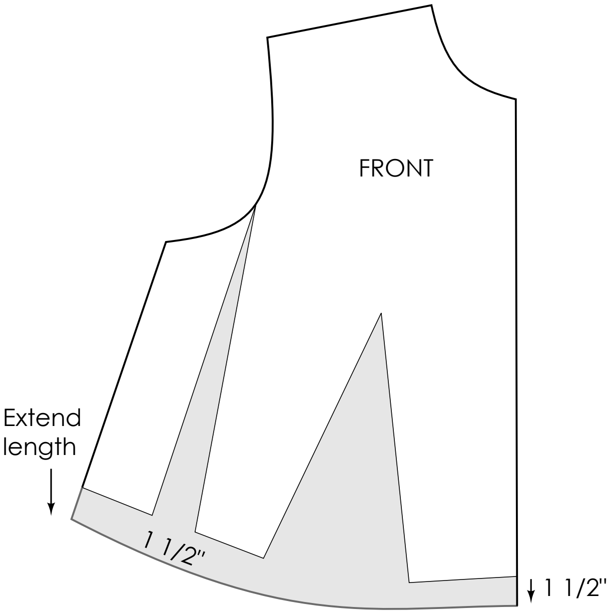
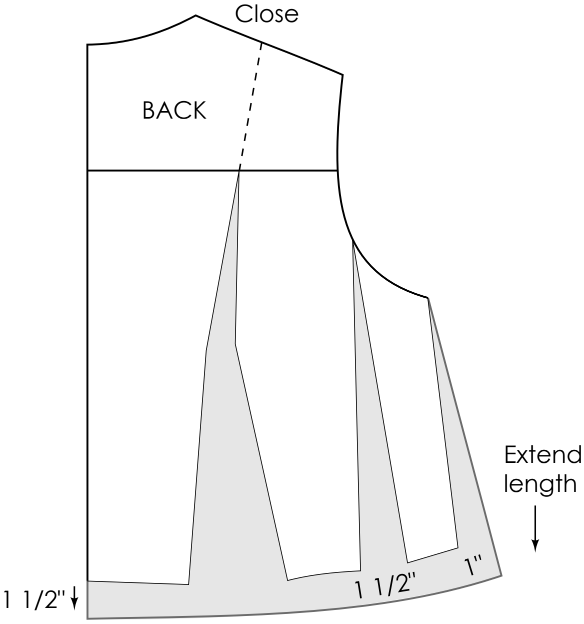

FRONT
Extend length
1 1/2"
1 1/2"

Figure 4


Close
BACK
Extend length
1 1/2"
1"
1 1/2"

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

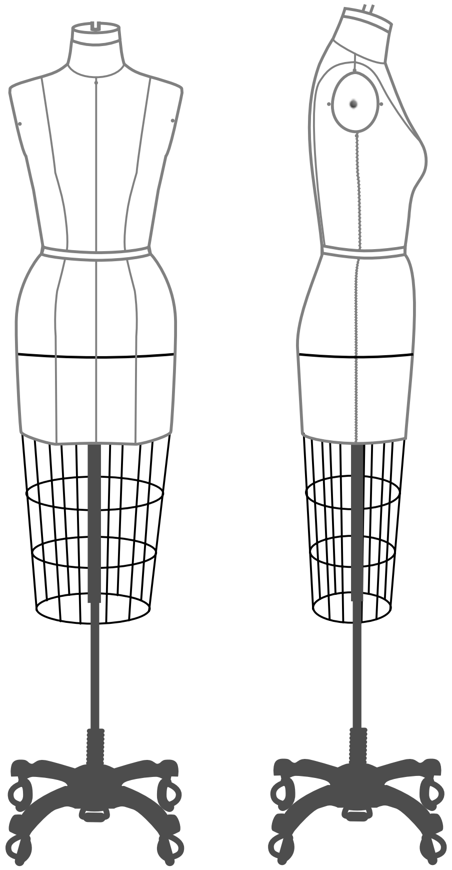
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

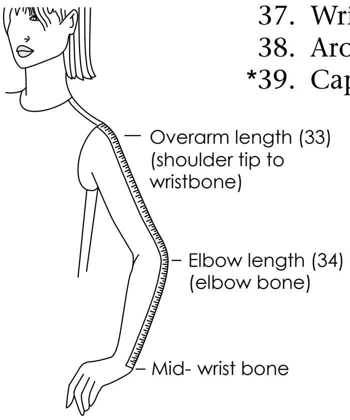
Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

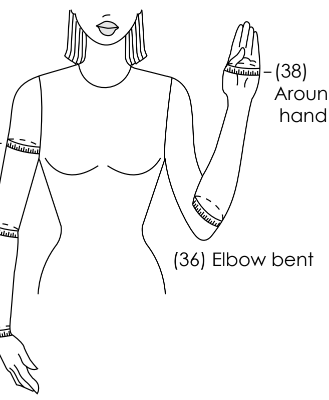
Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____

Length


Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone

Circumference



*Measuring the Arm

Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

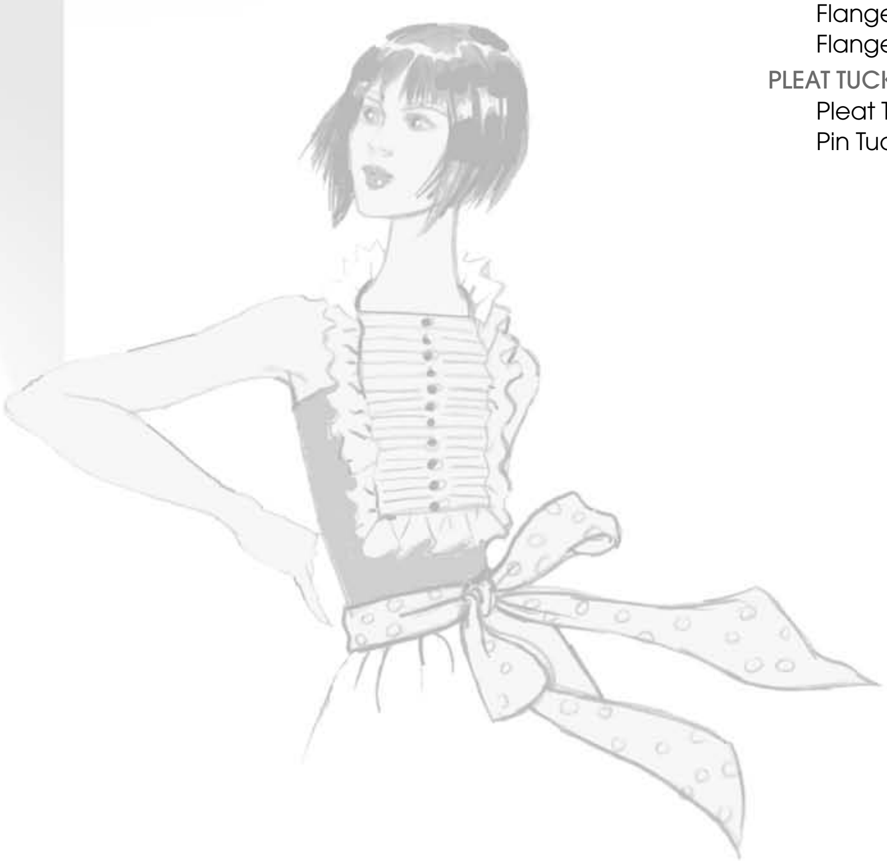
This page intentionally left blank

Yokes, Flanges, Pin Tucks, and Pleat Tucks

From Chapter 8 of *Patternmaking for Fashion Design,* 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

Yokes, Flanges, Pin Tucks, and Pleat Tucks

YOKES FOR BODICE
    Basic Front Yoke—Slash and Spread
    Basic Back Yoke—Pivotal and Transfer
    Back Yoke with Inverted Box Pleat
    Back Yoke with Added Fullness/Gathers
    Back Yoke with Action Pleat
    Yoke Design Variations
FLANGES
    Dart Flange
    Flange to Waist
    Flange Inset
    Flange Design Variations
PLEAT TUCKS AND PIN TUCKS
    Pleat Tucks
    Pin Tucks

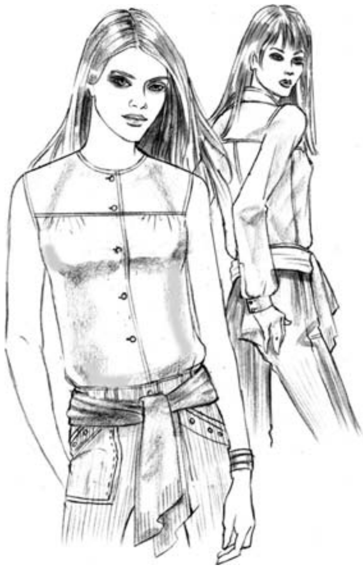


YOKES FOR BODICE

A yoke is the upper part of a garment that fits the shoulder area. It is attached to the lower section by a seam that may appear as a horizontal or stylized line. A yoke styleline can be placed anywhere above the bust level or on the back garment above, at, or below the shoulder blades. The yoke controls gathers, pleats, or a plain area to which it is attached. As a design feature, yokes are found on all types of garments. Refer to the yoke instruction when designing shirts.

Design Analysis: Designs 1 and 2

The yoke series includes a front yoke (Design 1). The back (Design 2) illustrates a yoke attached to an inverted box pleat and with gathers (Figure 5, or Design 3, Figure 1 in next section on Back Yokes).


Design 1 Design 2

Basic Front Yoke—Slash and Spread

Pattern Plot and Manipulation

Figure 1

- Trace front two-dart pattern.
- Square a line 2 1/2 inches down from center front neck to armhole (varies).
- Draw slash lines from bust point to yokeline parallel with center front and from side dart to bust point. Mark notches, as shown.
- Extend center front 1 inch for buttons and buttonholes.
- Mark notches for gather control 1 1/2 inches out from each side of slash line at yoke and dart legs at waist.

Figure 1

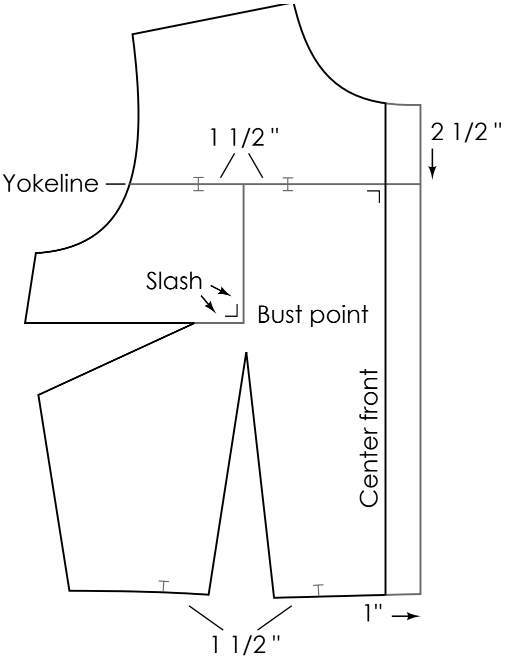
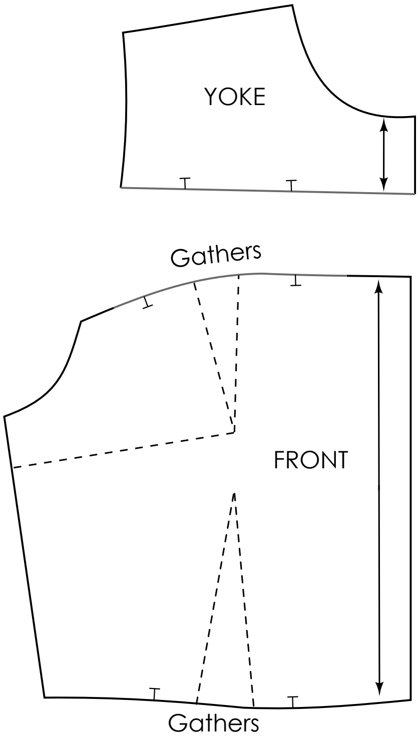


Figure 2

- Cut and separate pattern sections.
- Cut slash lines to, not through, bust point.
- Close side dart and tape. Retrace patterns.
- Blend gathered areas.
- Draw grainlines. Complete pattern for test fit.

Figure 2



Basic Back Yoke—Pivotal and Transfer

Back yokes are developed without a shoulder dart. Excess from the back dart is transferred to the mid-armhole, where it may remain (will gap slightly) or may be eliminated at the yokeline of the armhole. Use this method to develop patterns for Designs 2, 3, and 4.

Pattern Plot and Manipulation

Figure 1

- Square a line from the center back to the mid-armhole, or at a point that is one-fourth of the center back length. If the HBL is on the working pattern, use this line.
- Draw a line from the dart point to the yokeline for use as the pivotal point. Label A, B, C, D.

Figure 1

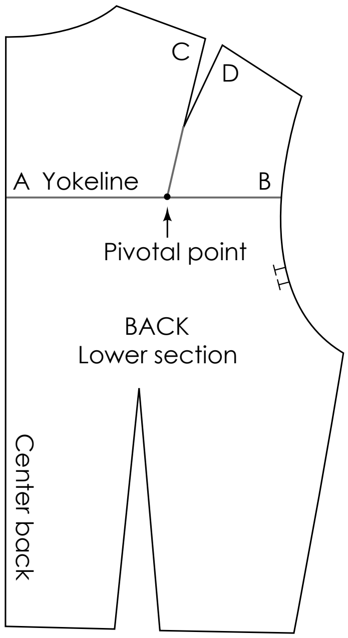


Figure 4

- Draw a line connecting A to B. (The distance between E and B represents dart excess.) To remove excess, see Figure 5.

Figure 2

- Place the pattern on paper with a push pin through the pivotal point.
- Mark yokeline on the paper at points A and B.
- Trace the pattern from A to dart leg C and mark dart leg (shaded area).

Figure 2

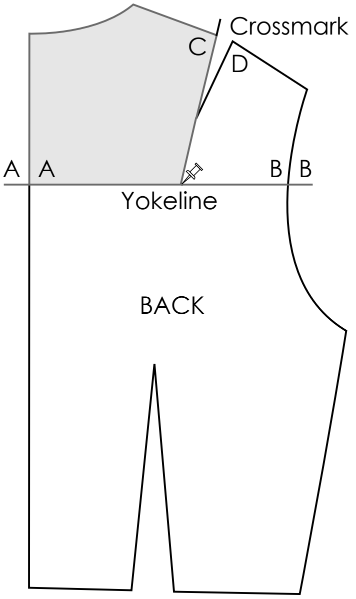


Figure 3

- Pivot pattern so that dart leg D touches crossmark on paper.
- Trace remaining pattern from dart leg D to B on pattern. Mark yokeline B and label armhole E. Remove pattern.

Figure 3

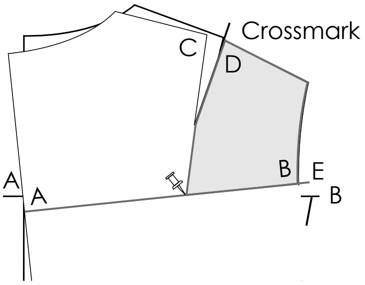
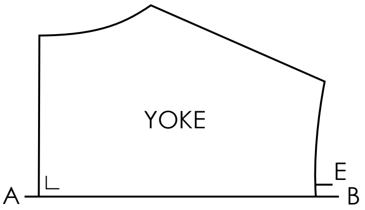


Figure 4



Back Yoke with Inverted Box Pleat

Figure 5

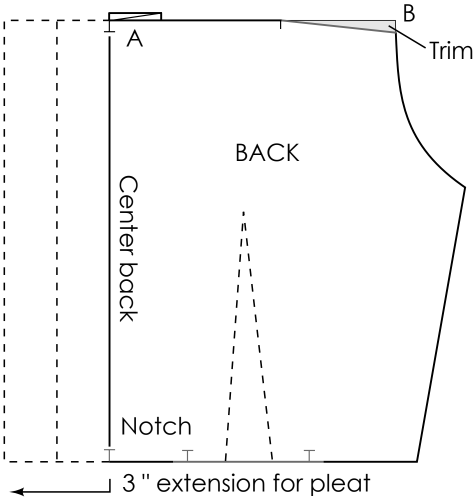
- Trace back pattern from yokeline (A-B) to waist. Mark pivotal point and remove pattern.
- Draw yokeline from A to B.
- Measure down from B to equal E-B (see Figure 4); trim.

Inverted Pleat

- Add 3 inches to the width of the back pattern.
- Mark notches to indicate fold of the pleat at center back and at 1 1/2 inches. Cut on fold or add a seam at center back.

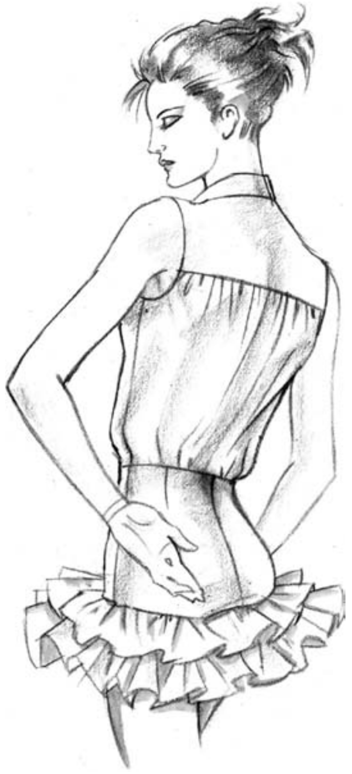
Figure 5

Inverted box pleat



Back Yoke with Added Fullness/Gathers

Design 3



Design Analysis: Design 3

Fullness is gathered across the back yoke of Design 3. To develop yokeline, refer to instructions given in Figures 1, 2, 3, and 4.

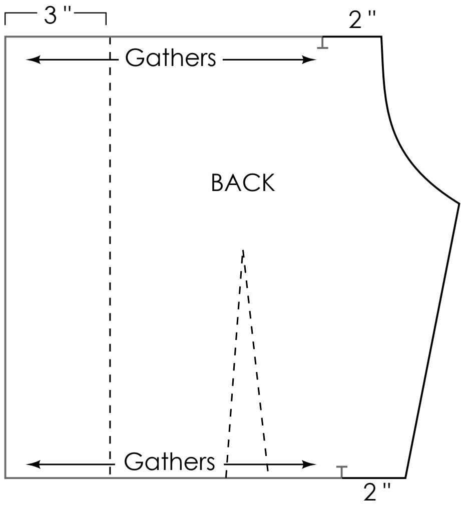
Pattern Plot and Manipulation

Figure 1 Yoke Gathers

- Trace lower back section, extending center back 3 or more inches for gathers. The excess from the waist dart (broken line) is absorbed into gathers. For this example, A to B is a straight line.
- Mark notches for gathers and for center back.

Note: For yokes that are stylized, pointed, or curved, draw slash lines and spread lower section for gathers (not illustrated).

Figure 1



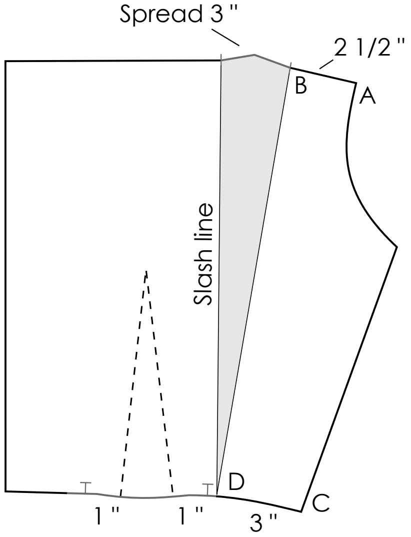
Back Yoke with Action Pleat

Pattern Plot and Manipulation

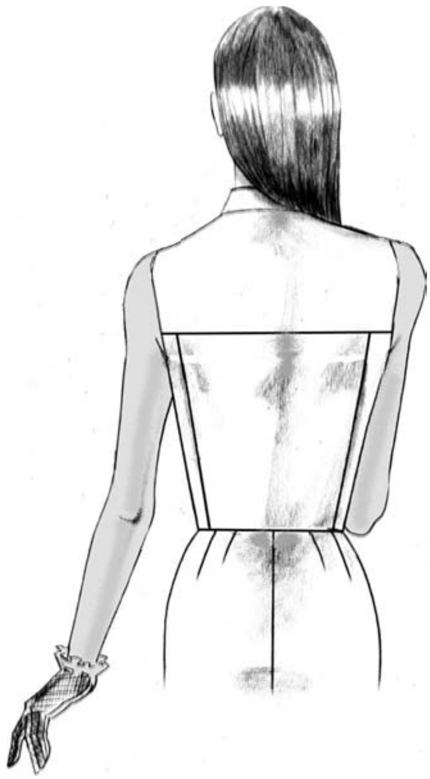
Figure 1

- Crossmark B 2 1/2 inches from A (varies).
- Mark D 3 inches from C (can vary).
- Draw line from B to D.
- Cut slash line from B to, not through, D. Spread 3 inches for pleat intake (shaded area).
- Mark gather control notches 1 inch out from each side of the dart leg. (Dart is indicated by broken lines.)

Figure 1



Design 4



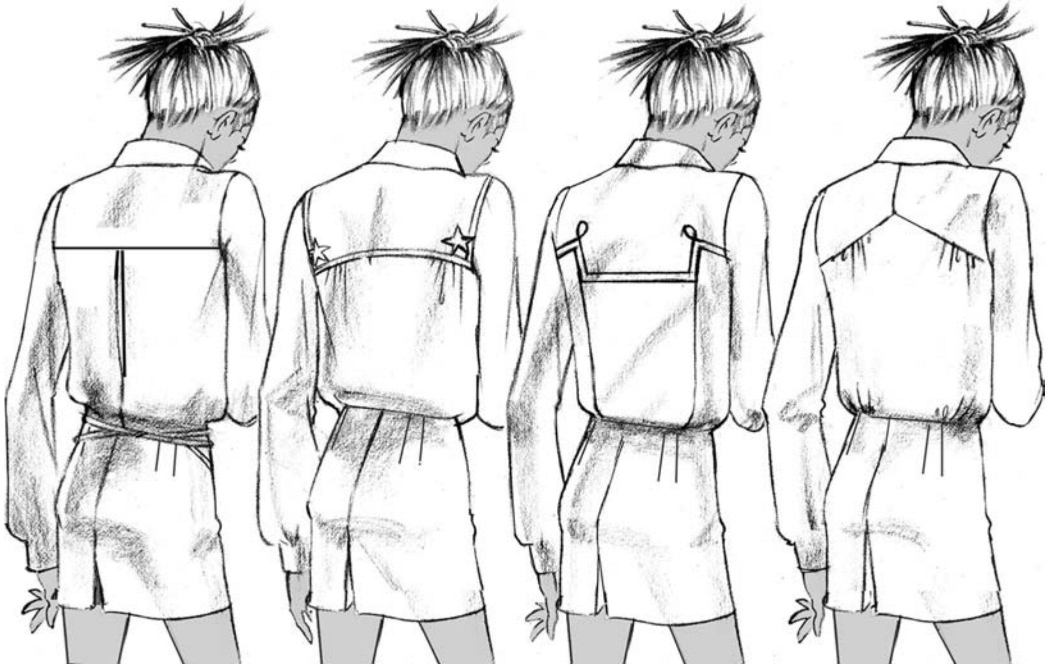
Design Analysis: Design 4

Design 4 features action pleats that are placed 2 1/2 inches in from the armhole at the yokeline. To develop the yokeline, refer to instructions given in Figures 1, 2, 3, and 4 on the previous Basic Back Yoke—Pivotal and Transfer section.

Yoke Design Variations

The yoke design variations are practice problems. The generated patterns are correct if they result in exact representations of each design.

Design 1 Design 2 Design 3 Design 4



FLANGES

A flange is an extension or part of a pattern that forms a continuation of the garment. It may be part of the same garment or a separate, set-in piece shaped as desired and stiched in the styleline. A flange may be developed anywhere along the shoulderline or at any location of any garment. The fold of a flange placed at the shoulderline should not fall within the curve of the armhole. This can distort the fit of the armhole and the look of the garment.

Design Analysis: Design 1

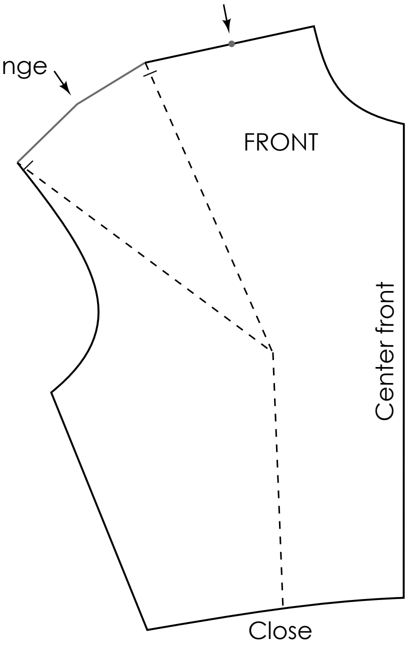
The flange is placed at shoulder tip, using the dart excess to create the effect of Design 1. The flange can be folded as a pleat (Figure 1) or stitched partway (Figure 2) as a tuck-dart when controlling fullness.

Pattern Plot and Manipulation

Figure 1 Flange Pleat

- Trace the front bodice pattern, transferring dart to shoulder tip.
- Fold flange with inside fold toward center front.
- Mark notches at each dart leg, or half the width of the dart beyond the notch, where the fold ends (see dot placement).

Figure 1



Dart Flange

Design 1

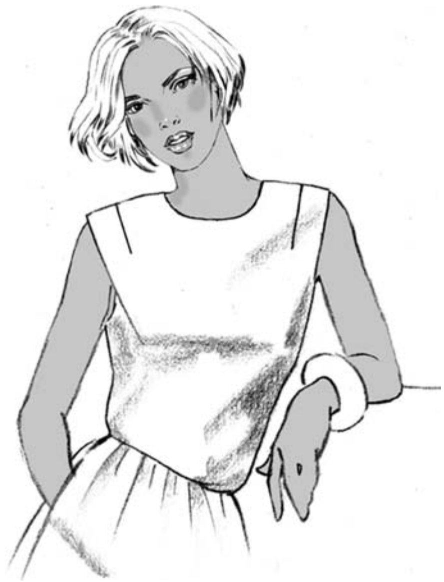


Figure 2

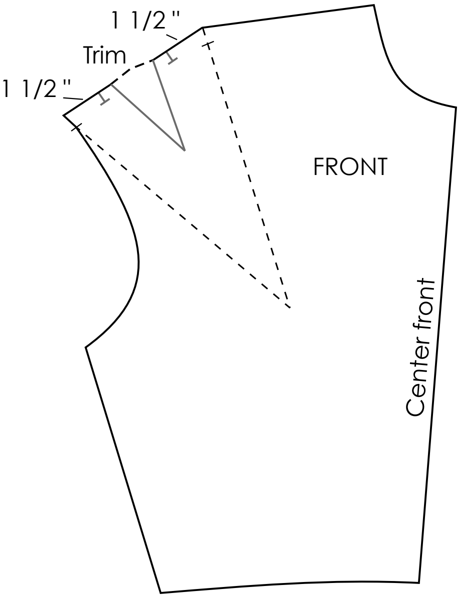
Flange Tuck-Dart Pleat

- Trim excess within 1 1/2 inches of dart leg.
- Mark dart legs and seam allowance notches.

Stitching Guide

Stitch inside seams together. Fold dart legs. Top stitch 1 inch in from fold, 4 inches down on dart legs on right side of garment.

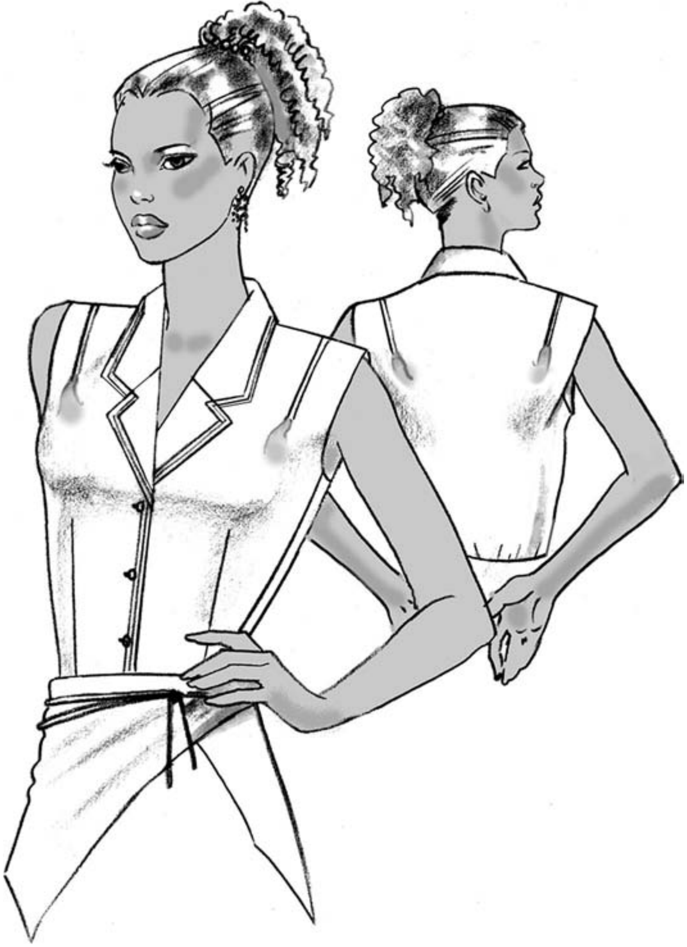
Figure 2



Flange to Waist

The flange is developed by adding fullness (Principle #2) without the use of the dart excess.

Design 2



Design Analysis: Design 2

The front and back flanges of Design 2 are connected to each other and not to the shoulder seam. The flange extends slightly beyond the shoulder tip.

Pattern Plot and Development

Figures 1 and 2

- Trace front and back patterns, transferring the shoulder dart to the mid-armhole.
- Mark A 1 inch from front and back shoulder tip.
- Mark B 3 inches in from side waist.
- Draw slash line from A to B for flange placement.
- Cut patterns from paper.

Figure 1

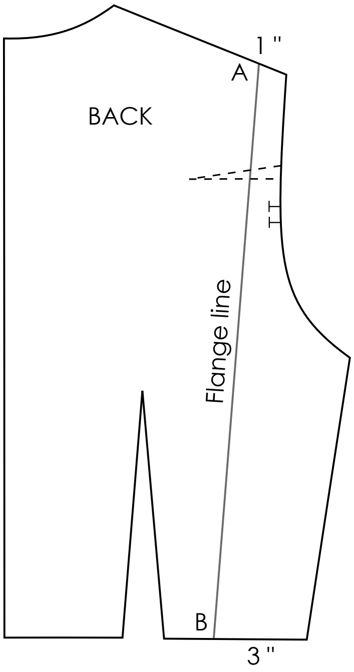
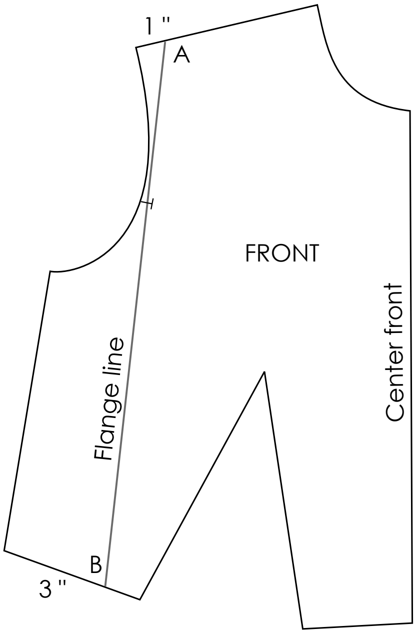


Figure 2



Figures 3 and 4

- Cut slash lines from A to, not through, B.
- Place on paper and spread A 3 inches for 1 1/2-inch-wide flange (shaded area).
- Trace pattern.
- Draw a straight line across open space A.
- Mark punch and circles 3 inches down from center and 1/8 inch in from stitchline for stitching guide. (Punch holes cause damage in the fabric. Punch hole placement required for the right side of the garment should be marked with chalk dust or pencil.)
- Extend 1 inch at center front for button and buttonholes.
- Draw grainlines and complete for test fit.

Figure 3

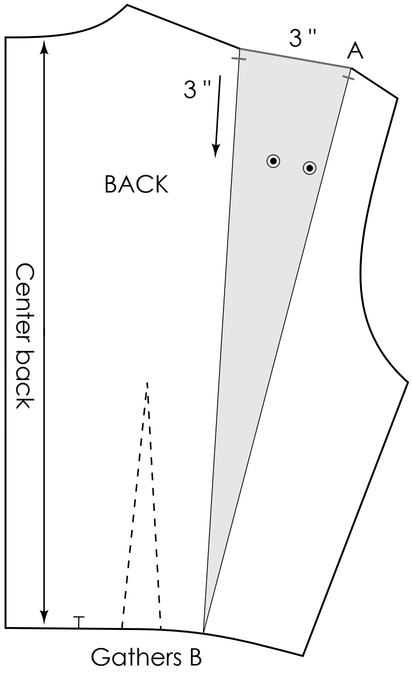
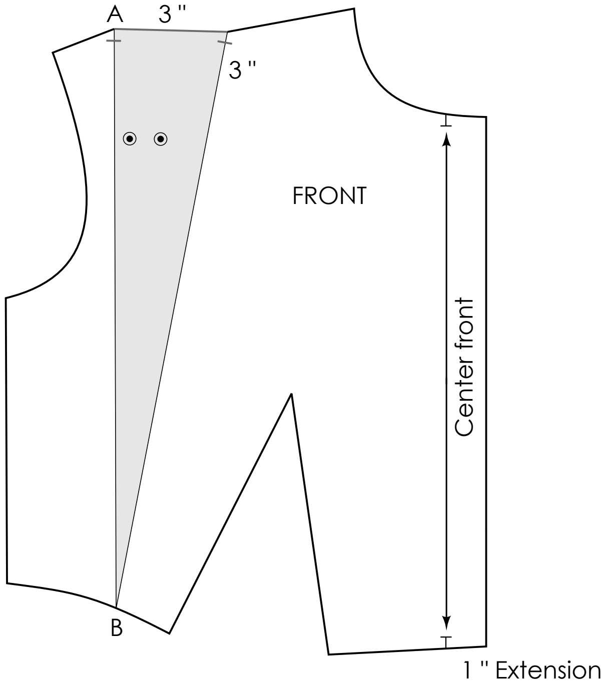

3 "
A
3 "
BACK
Center back
Gathers B

Figure 4

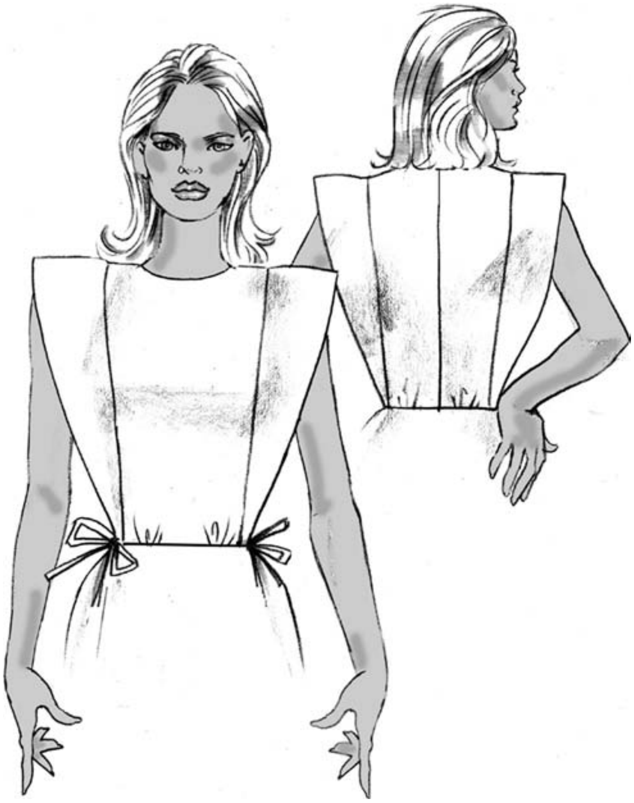

A
3 "
3 "
FRONT
Center front
B
1 " Extension

Flange Inset

Design Analysis: Design 3

A flange effect is created by inserting a shaped section of fabric into the bodice.

Design 3



Pattern Plot and Manipulation

Figures 1 and 2

- Trace front and back patterns.
- Mark A 1 inch from front and back dart legs at waist.
- Mark B 1/2 inch in from front and back shoulder tips.
- Draw slash line to connect A and B.
- Measure A to B length for front and back flange. Record: __________________.
- Reshape armholes by blending to slash lines B.
- Mark gather control notches at front and back waist 2 inches from center lines.
- Extend center back 1 inch for closure.
- Trim shaded area of armhole.

Figure 1

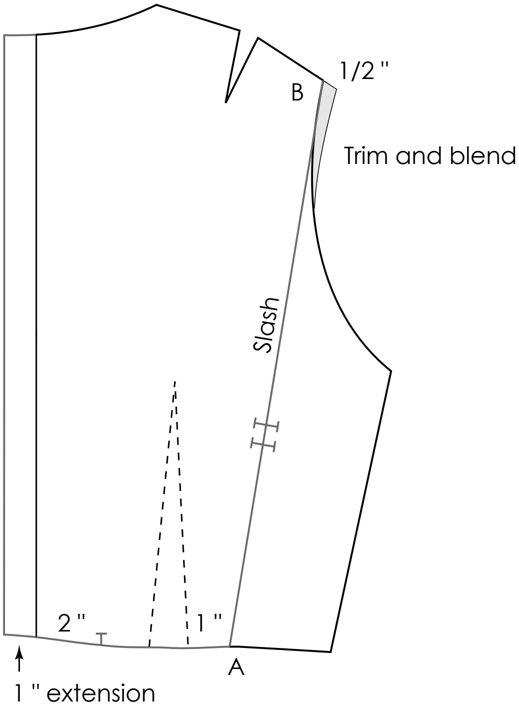
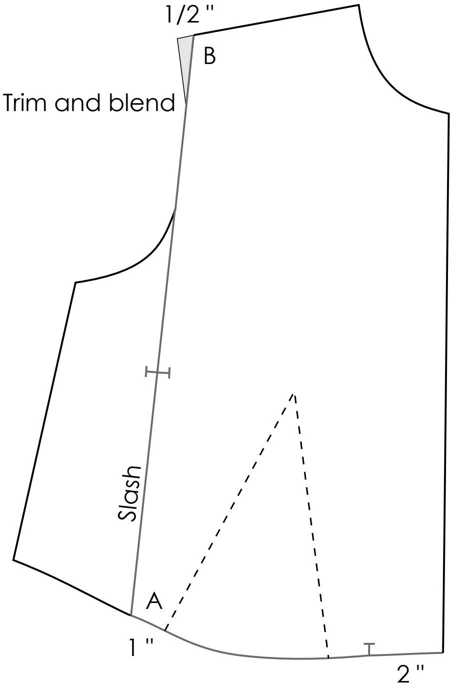


Figure 2



Figures 3 and 4

- Cut and separate pattern parts.
- Draw grainlines, as shown.

Figure 3

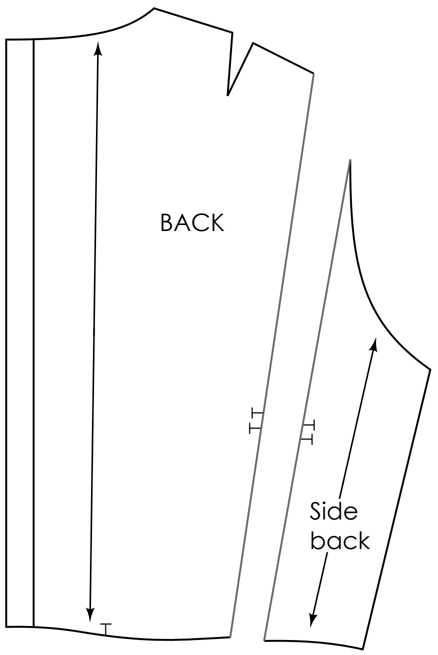

BACK
Side back

Figure 4

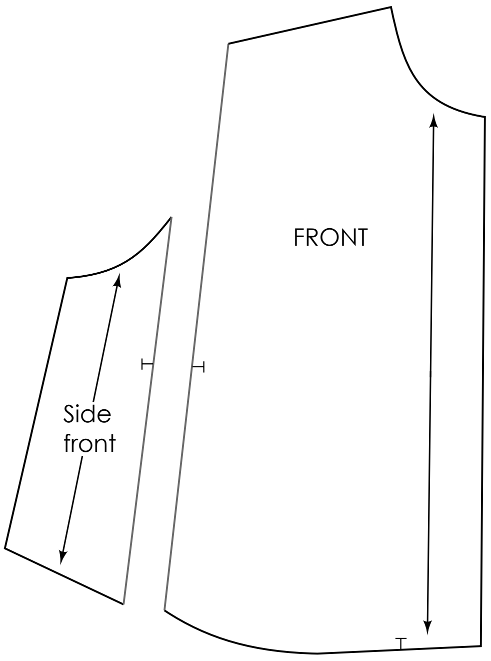
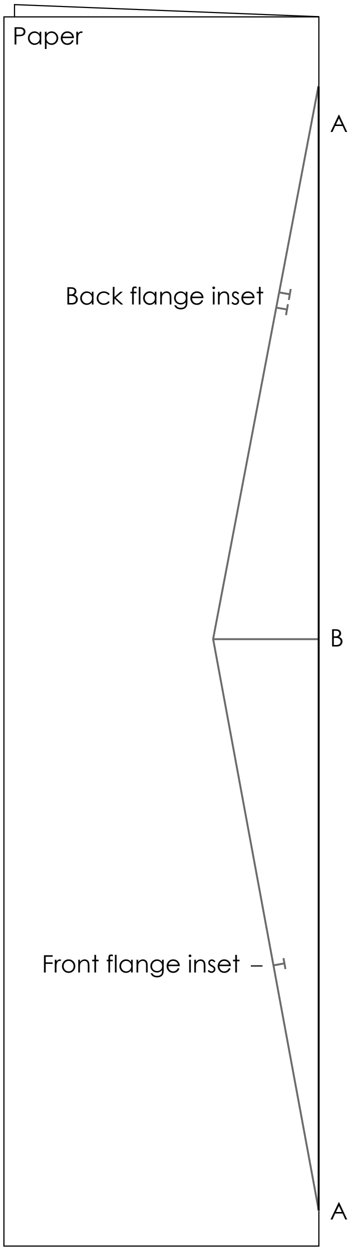

FRONT
Side front

Figure 5 Flange

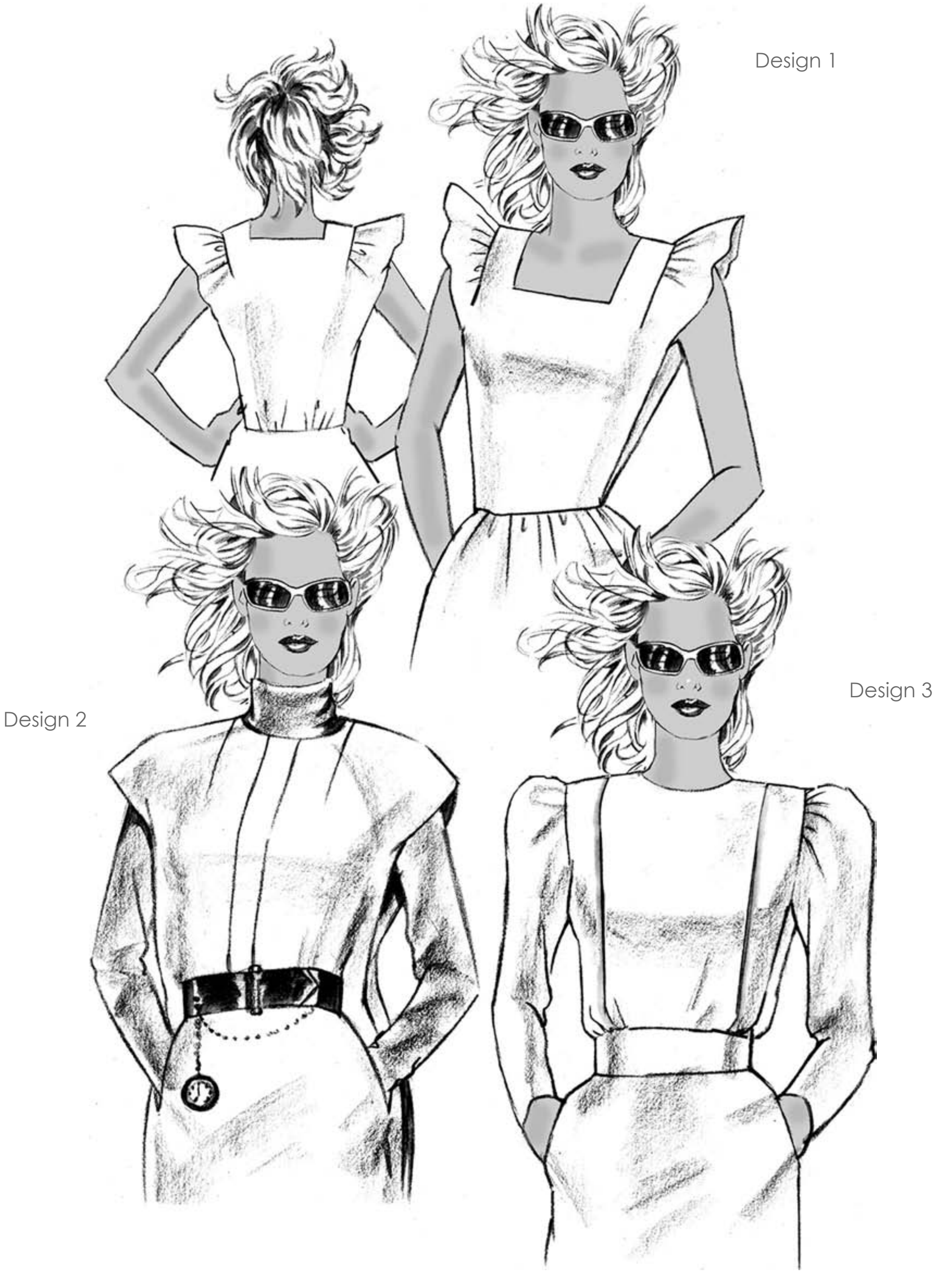
- Draw a vertical line on the paper equal to front and back flange length.
- Using A-B measurement of front bodice, cross-mark shoulder-tip location (label B). Fold paper.
- Square out from fold at B equal to desired flange width (example: 3 inches) and connect to flange points A using front and back A-B measurements, as shown. Mark notches for front and back.
- Complete pattern for test fit.

Figure 5


Paper
A
Back flange inset
B
Front flange inset
A

Flange Design Variations

Flange design variations are practice problems. The generated patterns are correct if they result in exact representations of the designs. If they do not, locate the problems and try again.

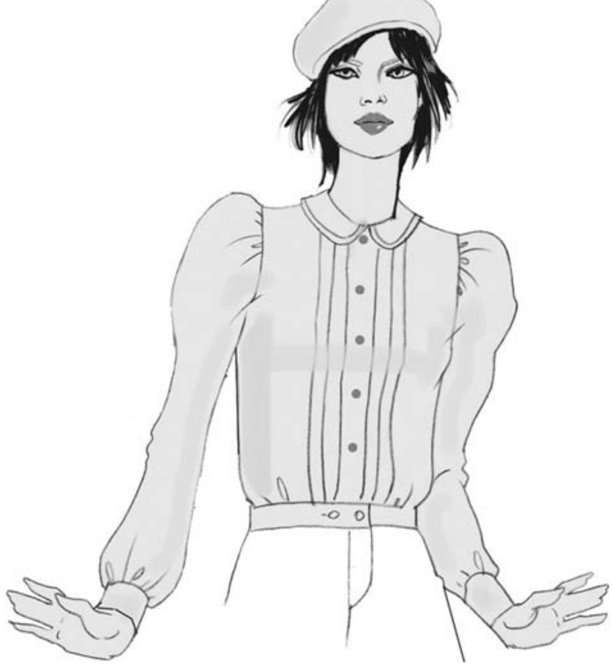


PLEAT TUCKS AND PIN TUCKS

A tuck is a stitched fold on the right side of the fabric, resembling a pleat. Tucks used as a design detail may be placed on any garment (top, skirt, dress, sleeves, pants, and so on). Tucks can be placed in any direction (vertical, horizontal, and diagonal). Tucks may be of any width (finished to a width of 1/16 inch to 1 inch or more) and spaced close or far apart for varying effects. It is less expensive for a manufacturer to have tucking done by a trim house than to have it stitched in the factory. Tucks can be created by two methods: the running yard of fabric can be tucked and then cut into individual pattern pieces, or cut pattern pieces can be sent to a trim house for individual tucking. However, to test tuck placement and the "look" of the design before production, or to develop individual garments, use the general instructions that follow.

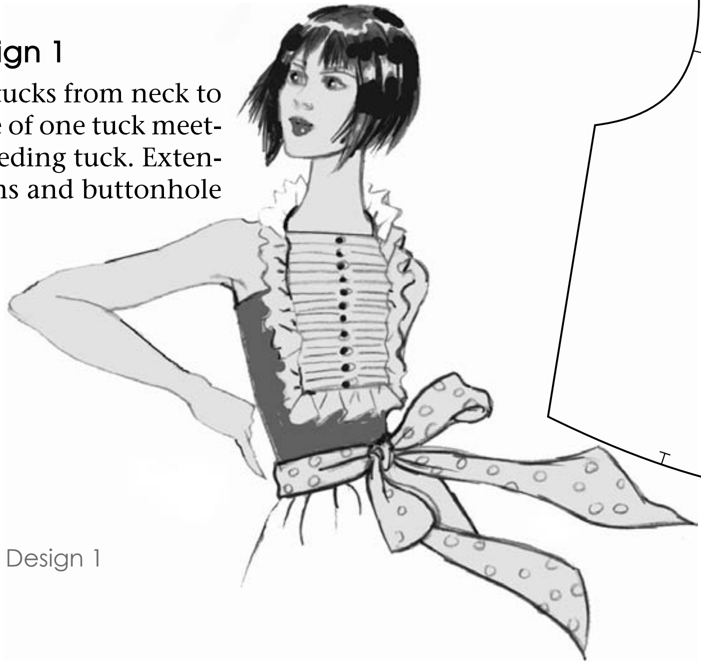
Pleat Tucks

Design 1



Design Analysis: Design 1

Design 1 features pleat tucks from neck to waist with the stitchline of one tuck meeting fold line of the preceding tuck. Extensions provide for buttons and buttonhole closure.



Design 1

Pattern Plot and Manipulation

The method shown for developing tucks does not involve slashing and spreading the pattern. The pattern is plotted for tuck locations as a guide for marking the pattern paper or fabric in establishing the required tucks and tuck intake.

Figure 1 Pleat Tuck Guidelines

- Trace front pattern.
- Draw a line for the extension 3/4 inch from the center front.
- Draw the tuck guideline 3/4 inch from center front.
- Draw the second guideline 1 inch from the first line.

Figure 1

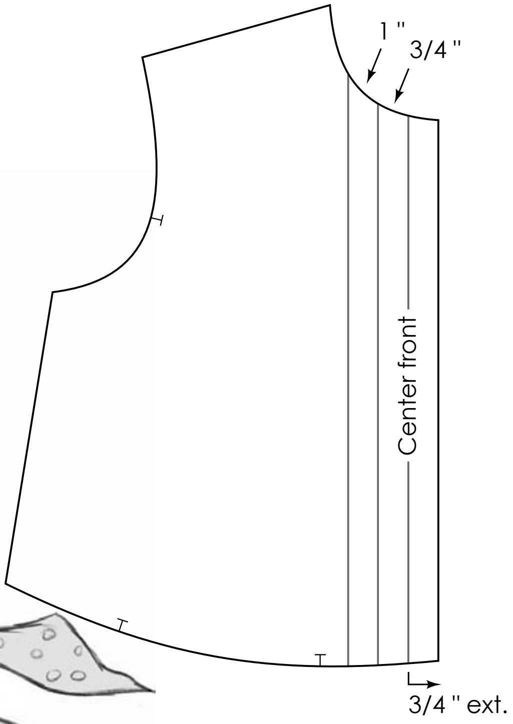


Figure 2 Plotting Tucks at 1/2-Inch Width

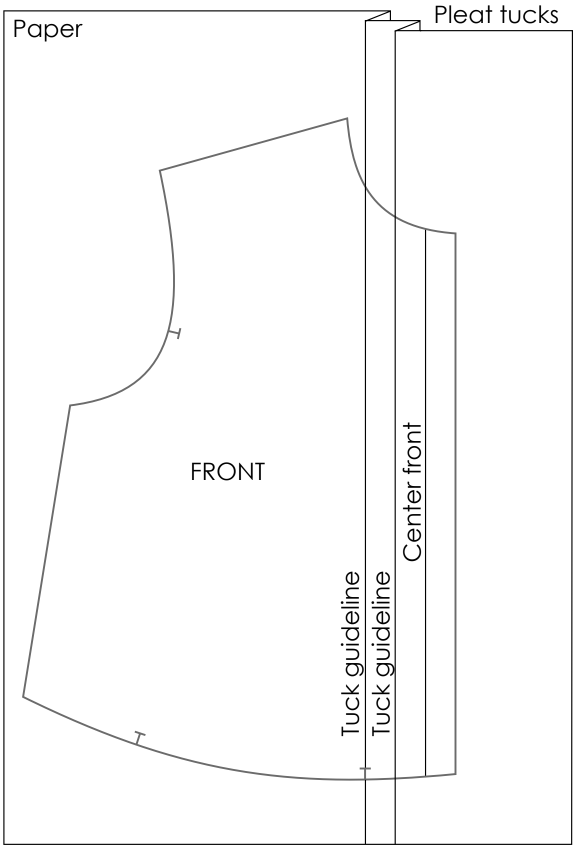
Industry: Tuck placement and intake is developed on a paper pattern.

- Draw a line 3 inches from the paper's edge.
- Mark the width of the first tuck at 1 inch.
- Mark space 1/2 inch.
- Mark second tuck at 1 inch.
- Repeat the process for each additional tuck.

Figure 3

- Fold tucks on the paper right-side-up.
- Place the pattern on paper, aligning tucks with the guidelines.
- Trace the pattern.

Figure 3


Paper
Pleat tucks
FRONT
Tuck guideline
Tuck guideline
Center front

Figures 5a, b

Individual designs: Mark tucks on the fabric rather than on paper.

- Mark tucks with pins (a) or by slip stitching (b) each line.
- Fold the fabric and stitch the tucks.

Figure 2

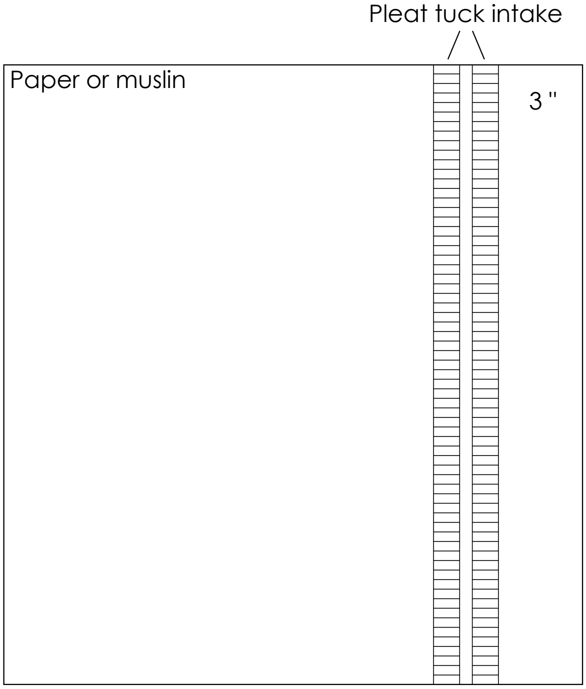

Pleat tuck intake
Paper or muslin
3 "

Figure 4

- Cut the pattern and unfold.
- Mark and notch each tuck and center front.

Figure 4

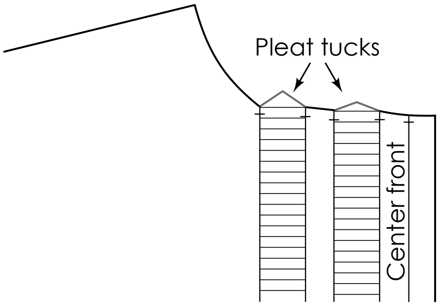
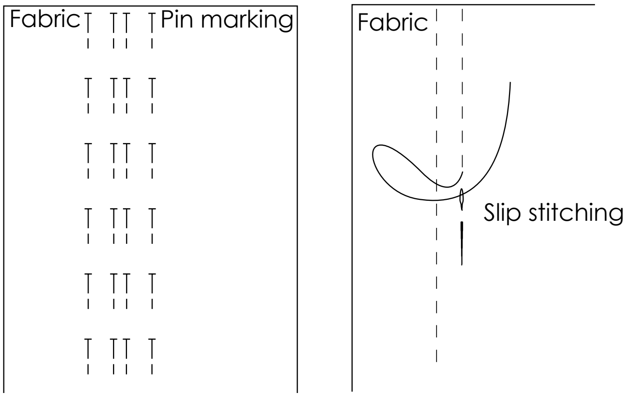
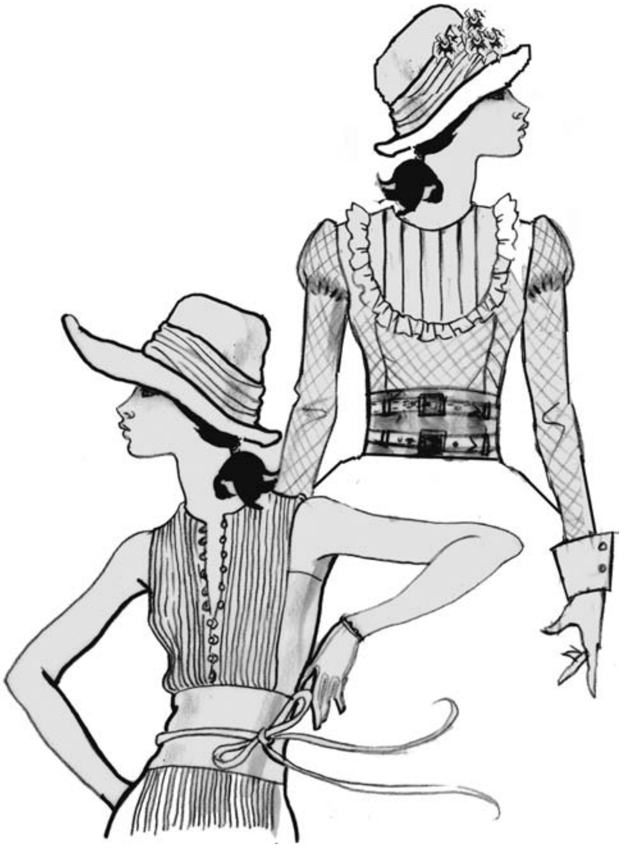

Pleat tucks
Center front

Figure 5


Fabric
Pin marking
Fabric
Slip stitching

(a) (b)

Pin Tucks



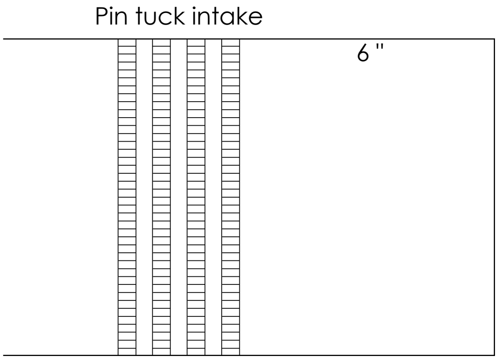
Design Analysis: Design 2

Design 2 features pin tucks in a bib inset. Pin tucks are placed with space between them.

Figure 2

- Draw four sets of parallel lines, 1/8 inch wide, for the tuck intake and spaced 1/4 inch apart. Draw the first tuck line approximately 6 inches in from the paper's edge. This will allow room to cut on the fold (actual allowance will depend on the number of tucks and the intake of a particular design).

Figure 2

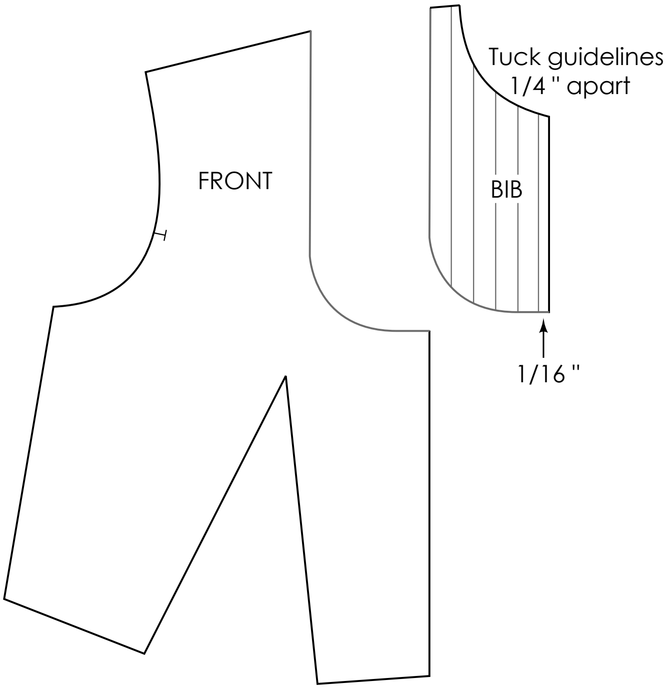


Pattern Plot and Manipulation

Figure 1 Plotting Tuck Placement and Intake

- Trace pattern and draw bib styleline.
- Cut from paper and separate patterns.
- Draw first line 1/16 inch in from the center front (1/8-inch space on fold). Draw additional parallel lines spaced 1/4 inch apart.

Figure 1



Figures 3 and 4

- Fold paper for each tuck, place bib guidelines on the tuck folds, and trace (Figure 3).
- Cut and unfold. Fold paper and trace for other side. Figure 4 shows the completed bib.

Figure 3

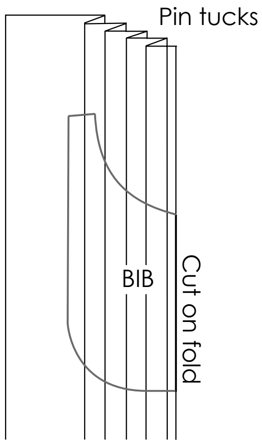
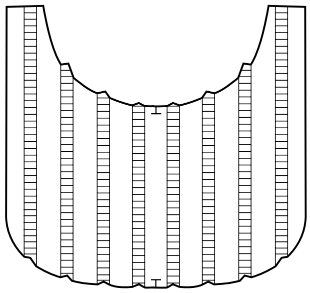


Figure 4



FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: ______, plus 2″ ease ______
2. Waist: ______, plus 1″ ease ______
3. Abdomen: ______
4. Hip: ______, plus 2″ ease ______

Upper Torso (Bodice)

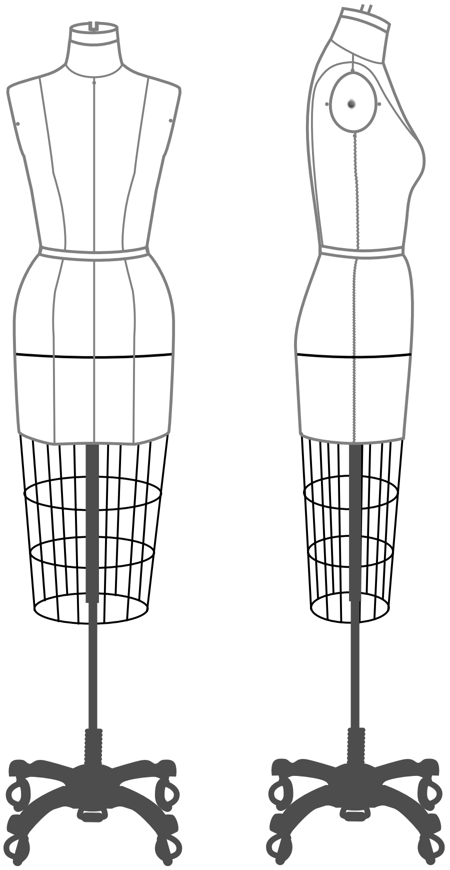
5. Center length: F ______, B ______
6. Full length: F ______, B ______
7. Shoulder slope: F ______, B ______
8. Strap: F ______, B ______
9. Bust depth: ______, radius ______
10. Bust span: ______
11. Side length: ______
12. Back neck: ______
13. Shoulder length: ______
14. Across shoulder: F ______, B ______
15. Across chest: ______
16. Across back: ______
17. Bust arc: ______
18. Back arc: ______
19. Waist arc: F ______, B ______
20. Dart placement: F ______, B ______

Lower Torso (Skirt/Pant)

22. Abdomen arc: F ______, B ______
23. Hip arc: F ______, B ______
24. Crotch depth: ______
25. Hip depth: C.F. ______ C.B. ______
26. Side hip depth: ______
27. Waist to ankle: ______
    Waist to knee: ______
    Waist to floor: ______
28. Crotch length: ______
    Vertical trunk: ______
29. Upper thigh: ______
    Mid-thigh: ______
30. Knee: ______
31. Calf: ______
32. Ankle: ______
    Foot entry: ______

Form

Form make and type ______
Size ______ Year ______



Special Information

Set form to desired height and measure the following:

C.F. waist to floor ______
C.B. waist to floor ______
C.B. neck to floor ______

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle ____ floor ____
28. Crotch length ____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

*Measuring the Arm

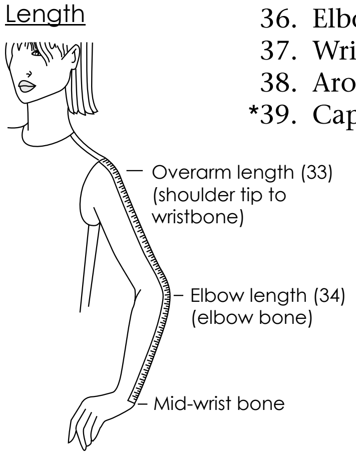
Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

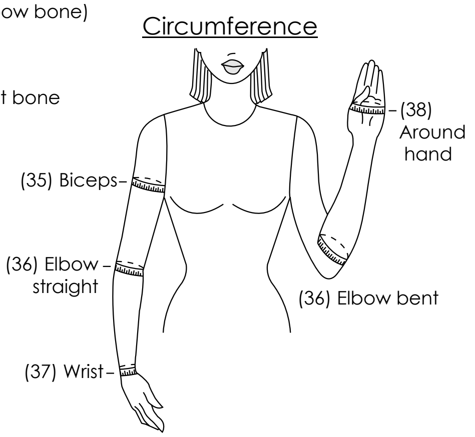
Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____


Length
Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid-wrist bone


Circumference
(38) Around hand
(35) Biceps
(36) Elbow straight
(36) Elbow bent
(37) Wrist

This page intentionally left blank

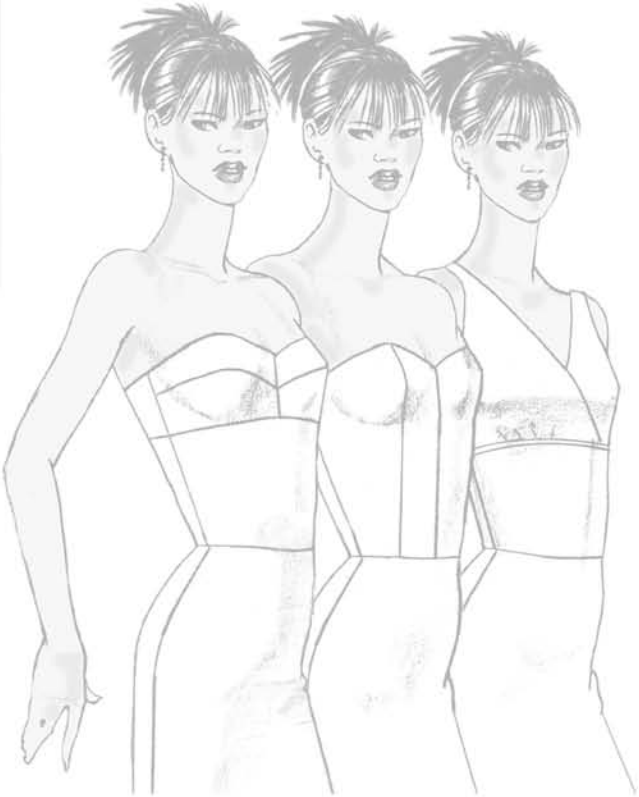
Contouring

From Chapter 9 of *Patternmaking for Fashion Design,* 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

Contouring

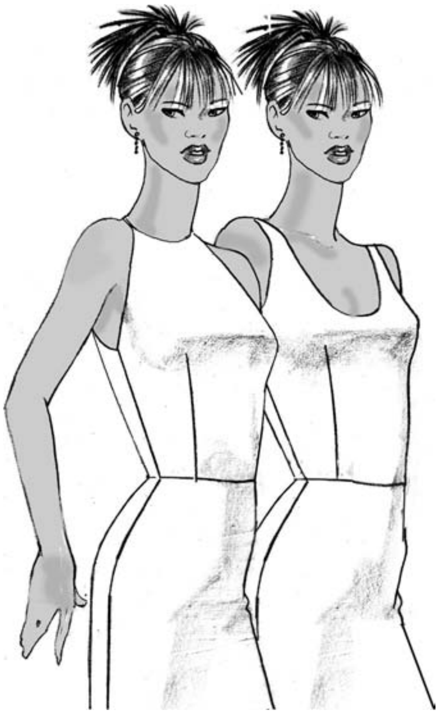
(Principle #3)

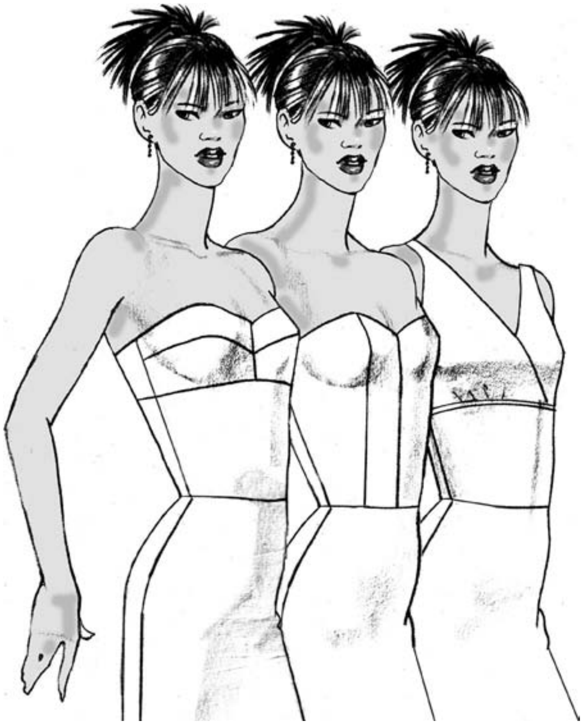
CONTOURING: PRINCIPLE #3
  Contour Designs
  Figure versus Basic Garment
  Fitting Problems
THE CONTOUR GUIDE PATTERNS
  Preparing the Contour Guide Patterns
  Measure the Depth of the Hollow Areas and Chart the Patterns
  Guideline 1—Cutout Necklines
  Guideline 2—Cutout Armholes
  Guideline 3—Armhole Ease
  Guideline 4—Empire Styleline
  Guideline 5—Contour Between the Busts
  Guideline 6—Strapless Designs
  Shoulder Slope and Side Ease
  Guideline 7—Back
  How to Use the Contour Guide Patterns
THE CLASSIC EMPIRE
  Empire with Shirred Midriff
SURPLICE (OR WRAP) DESIGNS
  Pattern for Left Side
  Pattern for Right Side
OFF-SHOULDER DESIGNS
  Gathered Shoulder
HALTERS
  V-Neck Halter



CONTOURING: PRINCIPLE #3

Principle. To fit the contours of the upper torso closer than does the basic garment, the pattern must be reduced *within* its frame to fit the dimensions of the body above, below, and between the bust and shoulder blades.





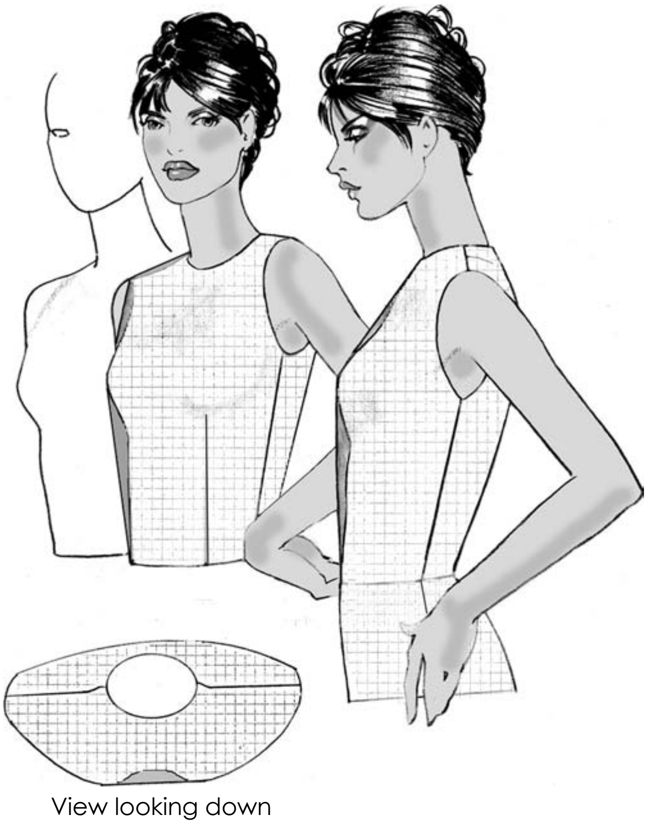
Corollary. To fit the upper torso closer than does the basic garment, the *outline* of the pattern is trimmed to fit the slope of the shoulder and the side seam ease is eliminated.

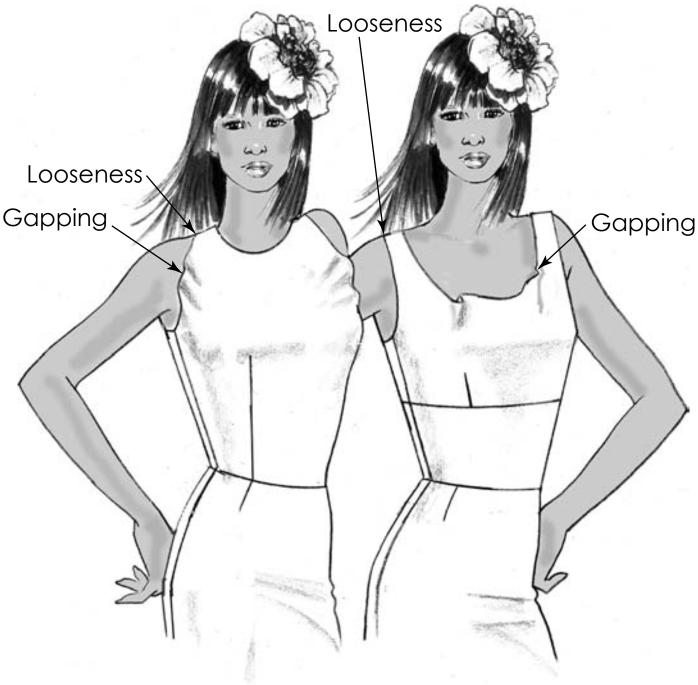
Contour Designs

Contour designs follow the contour of the body rather than bridging the hollow areas around the bust and shoulder blades. Contour designs include the empire styleline (contouring under the bust), strapless bra top (contouring over, under, and at times between the bust), surplice (contouring over and under the bust), and cutout armholes and necklines (contouring above the bust). To avoid fitting problems, patterns developed for contour designs are based on Principle #3, Contouring, and its corollary. Fitting problems occur if adjustments are not made to compensate for the differences between the pattern and the body's dimensions. The following information deals with the methods used to circumvent fitting problems through the use of the remarkable Contour Guide Patterns.

Figure versus Basic Garment

The contour of the figure is shown enclosed in a basic garment. (Visualize the garment as transparent.) The garment touches the outer limits of the figure and bridges the hollow areas. Study the relationship between the contours of the figure (shaded areas) and the garment. The hollow areas above, below, and in between the bust mounds do not come in contact with the garment. The figure's dimensions measure less in those areas than does the garment or pattern. The differences are measurable, and compensation can be made for them by using the Contour Guide Patterns.





Fitting Problems

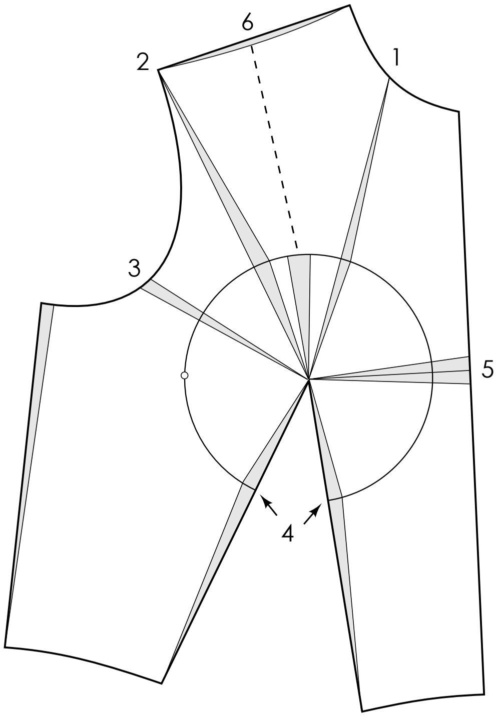
The following fitting problems will occur if the pattern is not adjusted for designs that contour the figure:

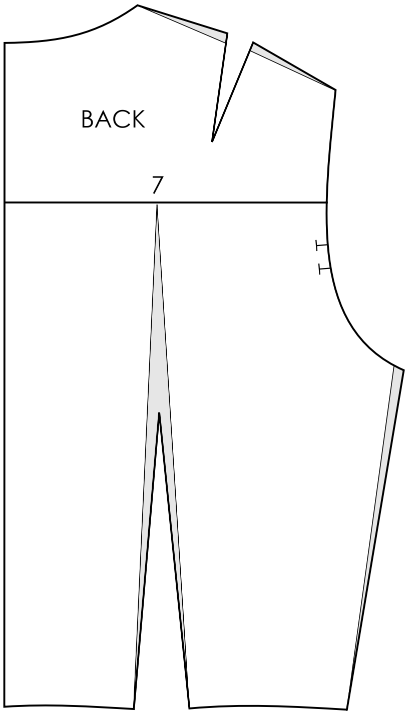
- When a portion of the neckline or armhole is cut out, the garment loses support of the shoulder and will fall to the hollow area over the bust, creating gapping.
- Empire, strapless, and bra designs have little or no bust definition. (That is, the designs will not fit closely under the bust to contour but hang loosely over the hollows of the figure.)

In each case, the look is changed and a good design is ruined.

THE CONTOUR GUIDE PATTERNS

The Contour Guide Patterns are tools that help the patternmaker circumvent fitting problems before they are incorporated into the design. The patterns are charted with guidelines that indicate the amount of excess to be removed from stylelines or darts for a closer fit. The guidelines are labeled by design types and represent the measurement between the garment and the hollow areas of the figure (above, below, and between the bust mounds), decreasing in both directions to the bust point and to the pattern's outline. The back bodice is charted for designs having low-cut necklines and for strapless garments. Illustrated are the front and back Contour Guide Patterns after the guidelines have been charted. The development and use of these patterns are illustrated in the projects that follow.





Preparing the Contour Guide Patterns

Measurement Needed

- (9) Bust radius_________

Figures 1 and 2

- Trace the front and back patterns, including all markings.
- Place compass at bust point and draw a circle using the bust radius measurement.
- The circle represents the hollow area between the figure and the basic garment.
- Punch a hole (with the awl) for pencil insertion when transferring the circle to a traced pattern.

Figure 1

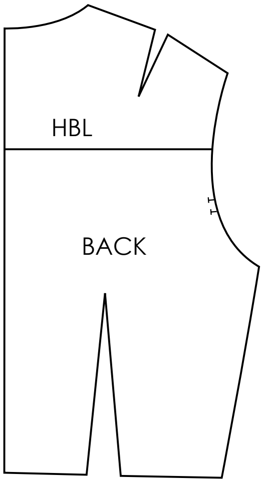
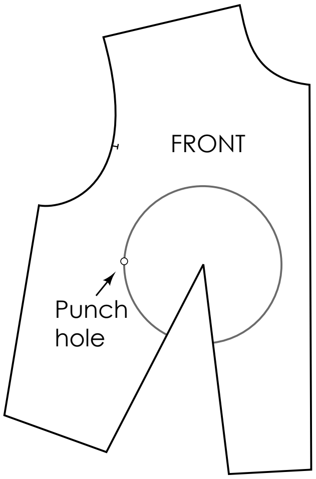


Figure 2



Measure the Depth of the Hollow Areas and Chart the Patterns

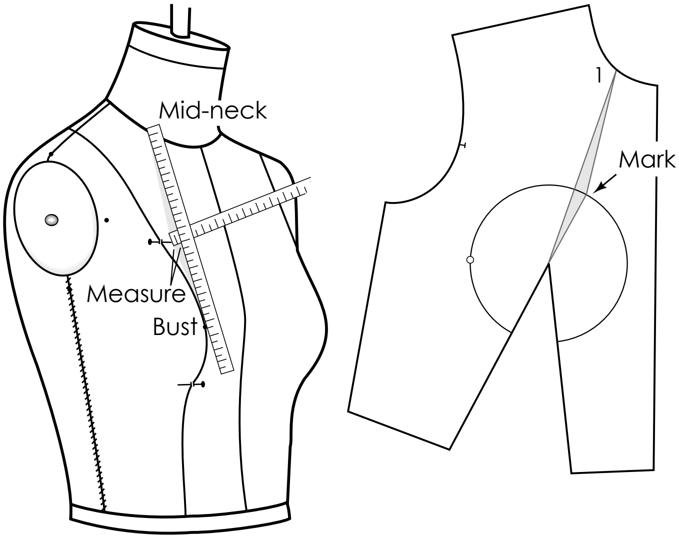
Patternmakers should use the standard measurements given *if* the form has an 11-inch difference between the bust and waist. Otherwise, measure the form as illustrated.

- Use the bust radius measurement to pin mark above and below the bust as a guide when measuring the depth of the hollow areas.
- Two rulers are required for measurement. One ruler is used to bridge the hollow at each designated area. The other ruler is used to measure the depth. The measurement indicates the amount of excess (gapping or looseness) that can be removed from the area for a closer fit.

Caution: When measuring a model, do not press ruler into the flesh.

Suggestion: Color-code the spaces contained within the guidelines for emphasis.

Single markings are illustrated for each guideline for clarity; however, all markings are to be placed on one pattern, as indicated on the examples given on the previous page. Measure, label, and chart each location that follows.



Guideline 1—Cutout Necklines

Eliminates excess (gapping) from the neckline.

Form

- Place the end of the ruler at mid-neck and in the direction of the bust point.
- The other ruler measures the depth at the pin mark.

Pattern

- Draw guideline 1 from bust point to mid-neck.
- Mark measurement out from circumference line and connect to neck and bust point.

Standard Measurement = 1/4″

Guideline 2—Cutout Armholes

The excess (gapping) is eliminated from the armhole for a secure fit.

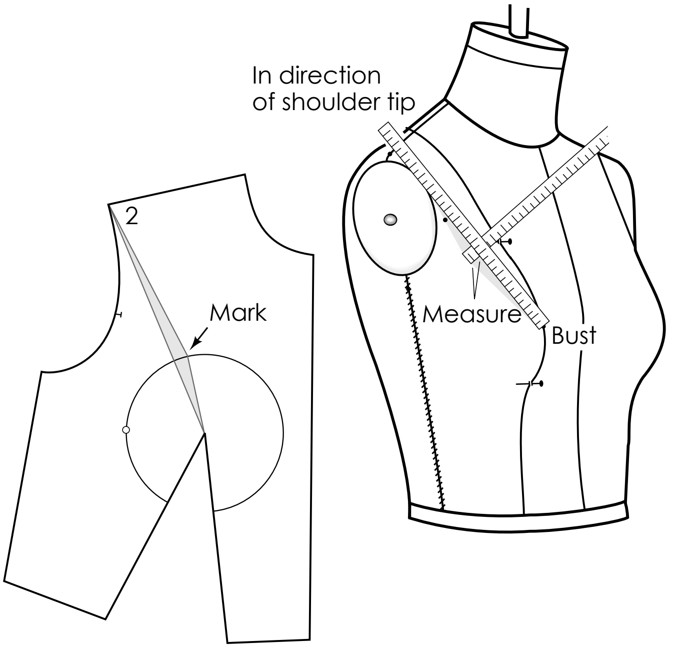
Form

- Place the end of the ruler at the bust point and in the direction of the shoulder tip.
- The other ruler measures the depth at the level of the pin mark. Add 1/4 inch to the measurement to offset bias stretch.

Pattern

- Draw guideline 2 from the bust point to the shoulder tip.
- Mark measurement out from the circumference line and connect to the shoulder tip and bust point.

Standard Measurement = 1/2″

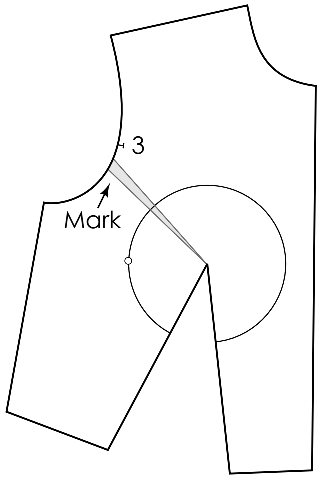


Guideline 3—Armhole Ease

The armhole ease is eliminated for strapless garments and cutout armholes.

Pattern

- Draw guideline 3 from the curve of the armhole to the bust point.
- Mark 1/4 inch (standard) and draw a line to the bust point. (Include with cutout armhole designs.)



Guideline 4—Empire Styleline

An empire is any styleline that crosses under the bust. To reveal the contour of the underbust, excess is eliminated.

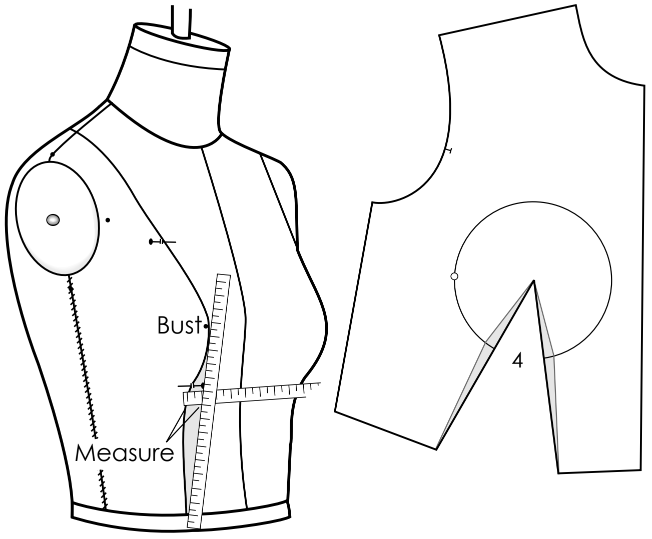
Form

- Place the end of the ruler at the waist and in the direction of the bust point.
- The other ruler measures depth at the pin mark.

Pattern

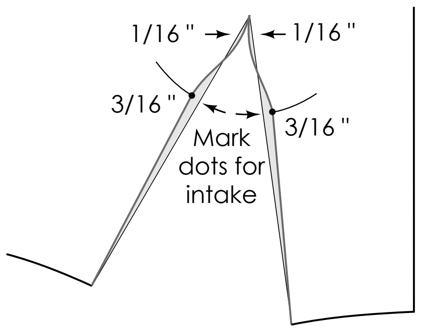
- The measurement is divided between the two dart legs at the circumference line of the circle.
- Mark the measurements and draw guideline 4 to the waist and bust point.

Standard Measurement = 3/4" (3/8" at each dart)



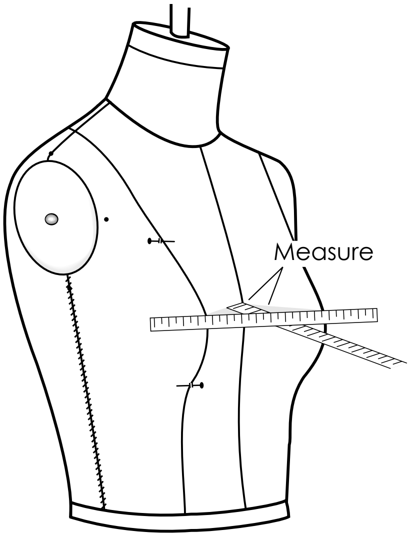
Designs with a Semi-Fit

The measurement under the bust is marked at half the amount (3/16″) given in guideline 4. This applies to contour darts and to princess stylelines. To contour the dart, follow the illustration.



Guideline 5—Contour Between the Busts

This approach is intended to reveal cleavage between the busts. (Excess between the busts is eliminated.)



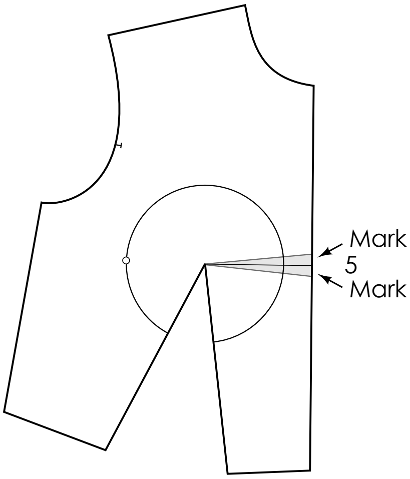
Form

- Place the ruler across bust points.
- The other ruler measures depth at the center front between the busts.

Pattern

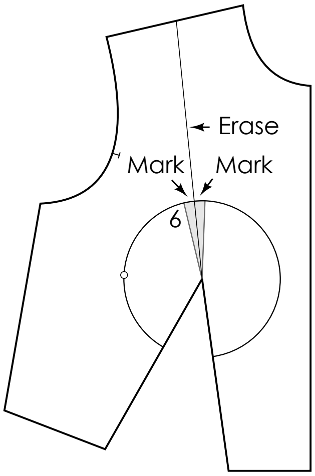
- Square guideline 5 from center front to the bust point.
- Mark half the measurement on each side of the square line to bust point.

Standard Measurement = 3/4" (3/8" each dart leg)



Guideline 6—Strapless Designs

Excess above the bust is eliminated for strapless designs and those secured with narrow straps.



Pattern

To simplify the process, guideline 6 is a combination of guidelines 1, 2, and 3.

- Draw guideline 6 from bust point mid-shoulder (princess line).
- Add the depth measurements of guidelines 1, 2, and 3.
- Subtract 1/8 inch to offset the thickness of the interconstruction.
- Connect lines to bust point.

Shoulder Slope and Side Ease

Eliminate unneeded fabric at the shoulderline for cutout neck or armholes. Eliminate side seam ease for strapless and bra tops.

Form

- Place ruler on end from shoulder/neck to shoulder tip. With the other ruler, measure depth at mid-shoulder.

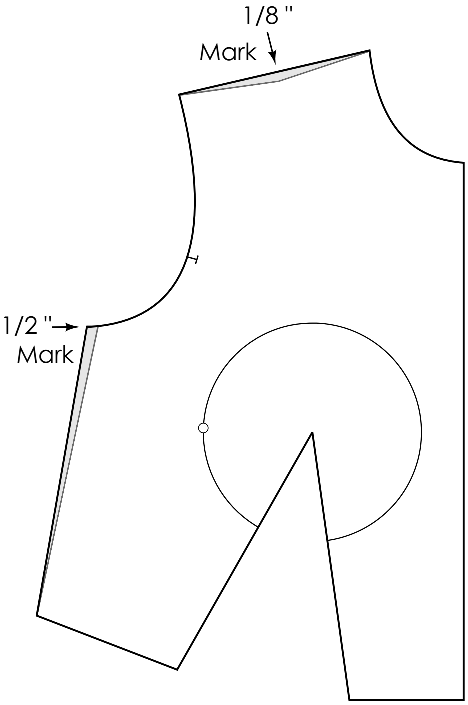
Pattern

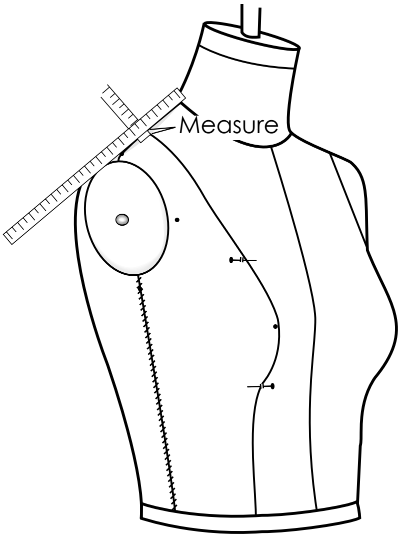
- Mark depth measurement at mid-shoulder and connect to shoulder/neck and shoulder tip.

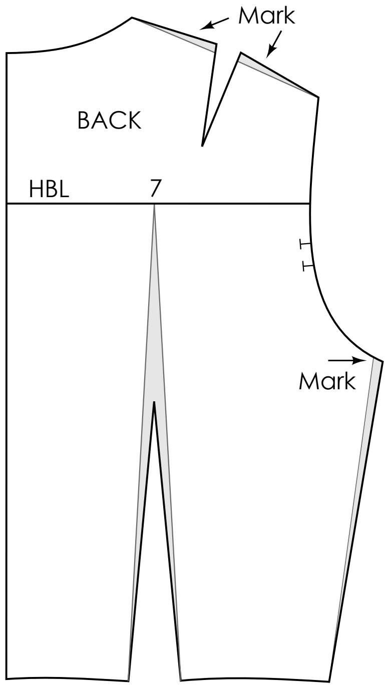
Standard Measurement = 1/8 inch

- Mark side ease and draw guideline from mark to zero at waist.

Standard Measurement = 1/2 inch







Guideline 7—Back

Eliminate unneeded ease for strapless and cutout necklines.

Pattern

- Mark a point on the HBL line that is in line with the dart point of the waist dart.
- Draw guideline 7 from the dart legs at waist to the mark.
- Shoulder and side ease are the same as for the front bodice.

How to Use the Contour Guide Patterns

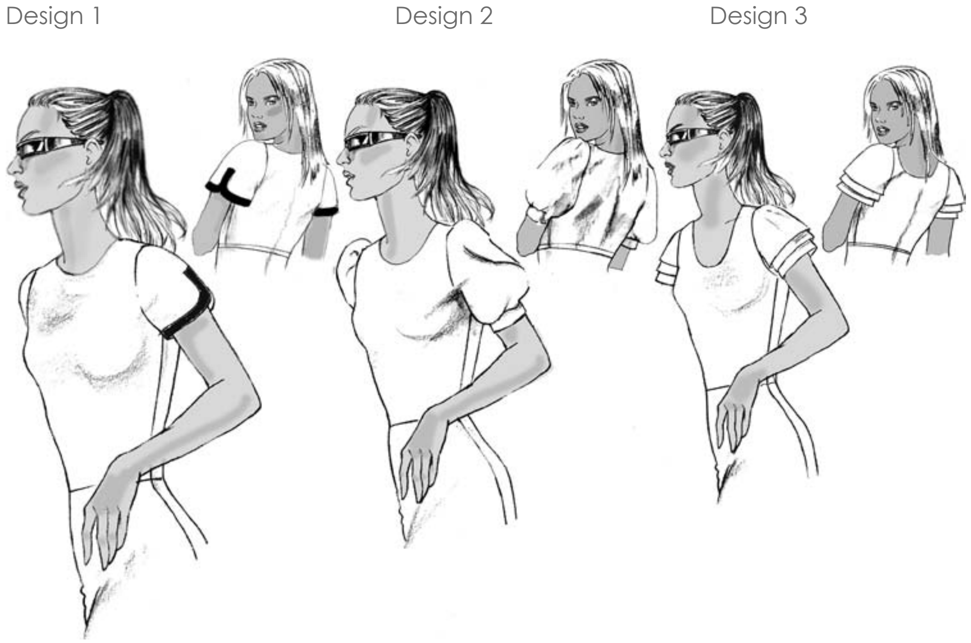
The Contour Guide Patterns should be used for all designs that fit closer to the figure than does the basic garment. Designs may require more than one modification. This will be illustrated later.

A styleline must cross a guideline before modification is required.

The amount of excess to be transferred, or absorbed for a closer fit, is indicated at a *point where the styleline crosses the guideline*. The closer a styleline is to the circumference line on the pattern, the greater the intake.

The excess indicated between the guidelines (shaded areas on the pattern) can be transferred to an existing dart or absorbed into design detailing (pleats, ease, or styleline). The excess can be trimmed from a styleline (example: princess stylelines) above or below the bust. The method chosen depends on the design.

Designs 1, 2, and 3 feature cutout necklines placed at, or at varying distances from, the bust circumference line of the Contour Guide Patterns. Through design analysis, determine which guidelines are required before plotting the pattern. For example, Designs 1, 2, and 3 require guideline 1 (cutout necklines), and front and back Shoulder Slope Guideline (always combined with cutout necklines and armholes). Design 3 with a low back requires the use of guideline 7.



Procedure for Pattern Plot Using the Contour Guide Patterns

Figures 1 and 2

- Trace front and back Contour Guide Patterns. With a push pin, transfer required guidelines to paper underneath (in the example, guidelines 1 (front) and 7 (back); include front and back shoulder slope guidelines.

With a pencil in the hole of the circle, draw the bust circumference (all or part), when needed for controlling placement of stylelines.

- Remove pattern and connect guidelines. The straight guideline is always the cut line.

Figure 1

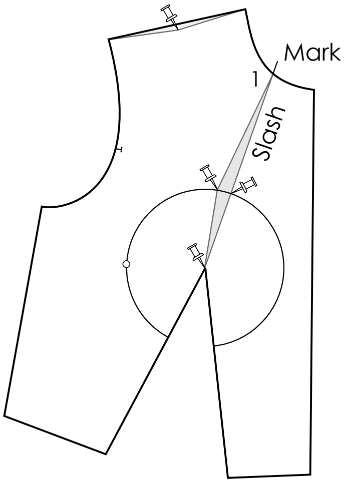
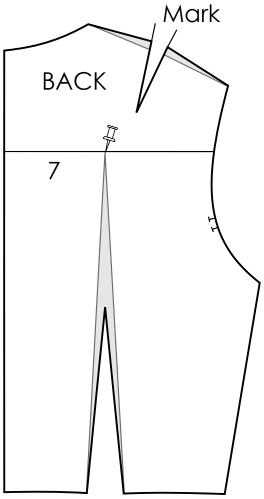


Figure 2



Transferring Excess at the Styleline

- The cutout necklines of Designs 1, 2, and 3 are drawn to show the relationship of each neckline to the bust circumference and shoulderline. Remember, the amount of excess to be removed is indicated at the point where the styleline crosses a guideline. For clarity, label the guideline A and B at the styleline, as shown in each illustration.
- Cut the pattern, discarding unneeded areas of neckline and shoulder.
- Cut slash line A to, not through, bust point.
- Bring slash line A to meet B when transferring excess. Tape, retrace, and blend neckline.

Figure 3—Design 1

- When stylelines cross a guideline indicating less than 1/8 inch of excess, such as Design 1, modification is not required.

Figures 4 and 5—Design 2

- The neckline of Design 2 is above the circumference line. The neckline will fit closely but loosely over the hollow area above bust (indicated by the broken lines).

Figures 6 and 7—Front Design 3

- The cutout neck touches the circumference line of the bust. The neckline will fit the hollow area above the bust after the excess is transferred.

Figure 3

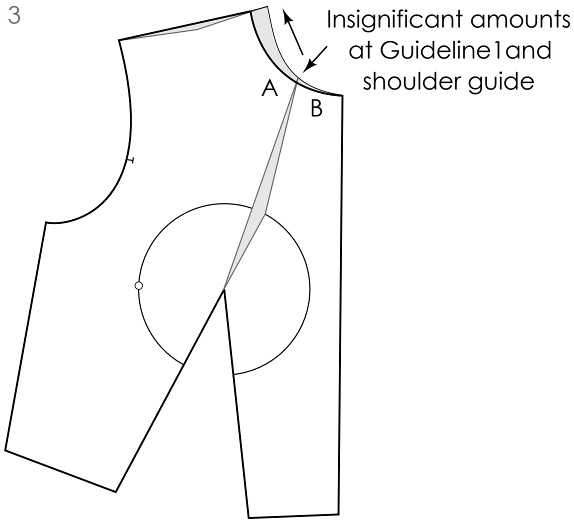

Insignificant amounts at Guideline1and shoulder guide
A
B

Figure 4

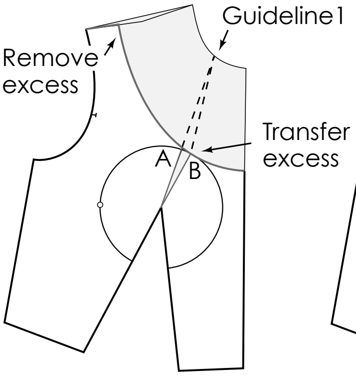
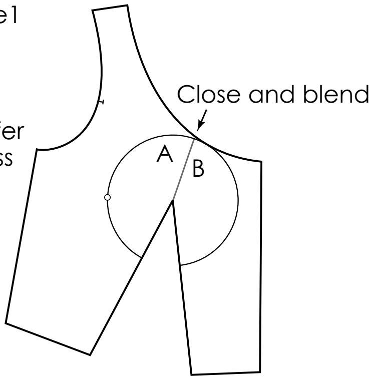

Guideline1
Remove excess
Transfer excess
A
B

Figure 5


Close and blend
A
B

Figures 8 and 9

Back

- The low-cut neckline crosses guideline 7. After the neckline and shoulder are trimmed, slash the leg of one guideline and overlap to the other guideline. Tape, trace, and blend.

Figure 6

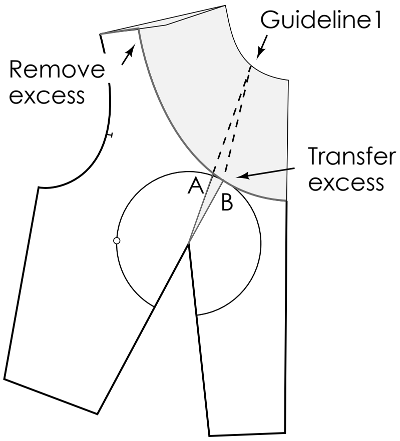

Guideline1
Remove excess
Transfer excess
A
B

Figure 7

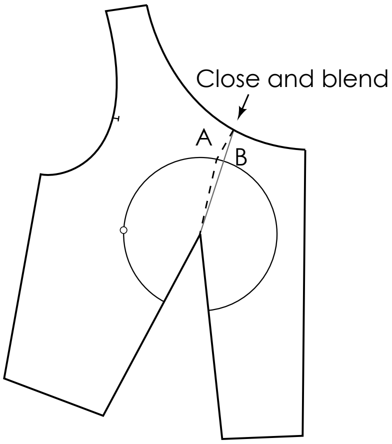

Close and blend
A
B

Figure 8

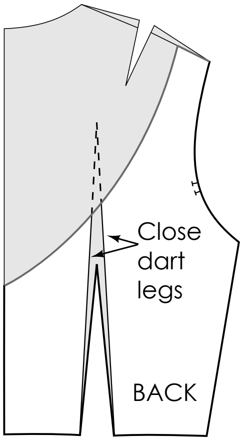
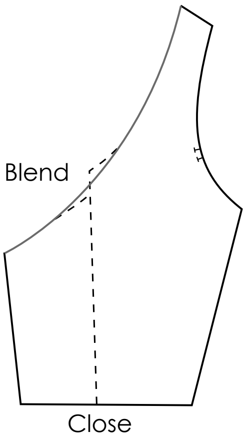

Close dart legs
BACK

Figure 9


Blend
Close

Figures 10 and 11 Modifying the Neckline Facing

- Facings for cutout necklines (scooped, square, V-neck) and armholes may be modified instead of the bodice. This is done by tracing the guidelines to the facing pattern and overlapping the excess. The bodice and facings are notched to control the ease at the neckline. Modifying the facing may be the preferred method when excess from several guideline areas is transferred. If this is the case, transfer some of the excess to the facing, as shown.

Figure 10

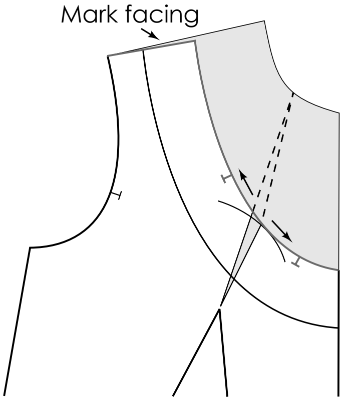


Figure 11

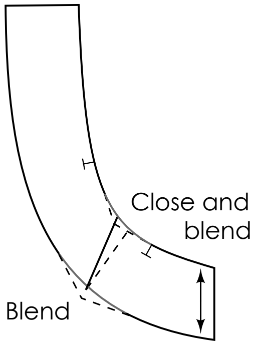
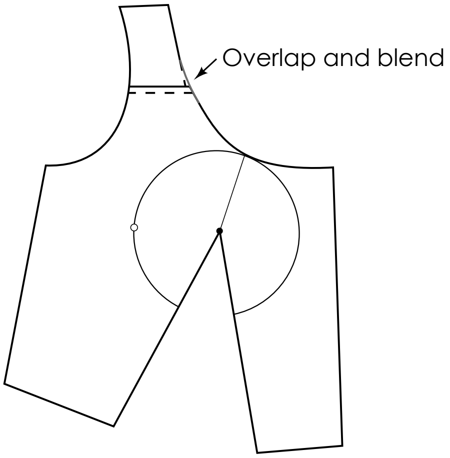


Figure 12 Stretch-Gapping Adjustment

- When a garment with a cutout neckline and/or armhole is gapping or loose after pattern adjustment, pin in the excess on the garment and measure. Correct the pattern as follows.
- Slash across neckline and through to mid-shoulder. Overlap the needed amount. Blend armhole and neckline. This will not decrease the armhole because the fabric will stretch to the original size of the armhole after the garment is cut. Write on the pattern that the armhole was modified due to stretch.

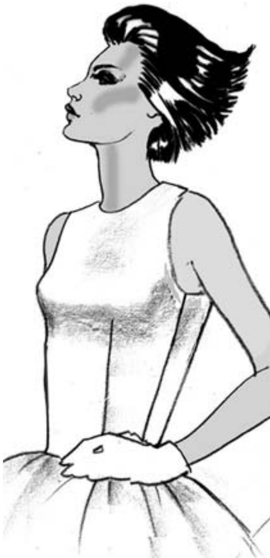
Figure 12



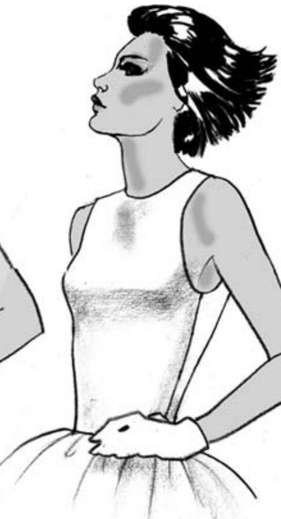
Designs with Cutout Armholes

The following designs are practice problems. Use previous instructions and illustrations as a guide. Garments having cutout armholes should include side seam guide markings for a tighter fit. Advanced designs requiring the use of the Contour Guide Patterns follow.

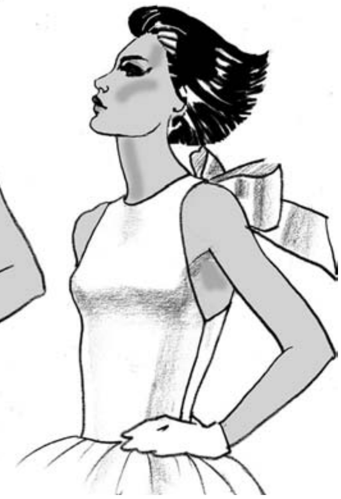
Design 1



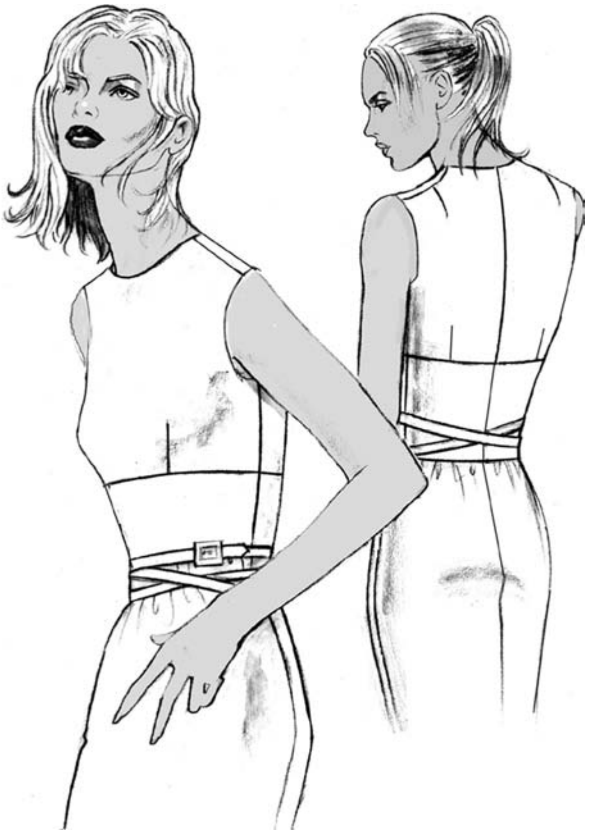
Design 2



Design 3



THE CLASSIC EMPIRE



The Classic Empire is a popular styleline found on many types of garments. It is distinguished as a styleline crossing under the bust, separating the pattern into two parts. The lower section is called the midriff. To emphasize the contour under the bust, the midriff fits close to the body and controls the fit of the upper garment. The empire styleline may or may not continue to the bodice back.

For design variations, the styleline can be drawn in many different directions after crossing under the bust.

Design Analysis

The midriff styleline of the Classic Empire crosses and contours under the bust. The styleline slopes gently downward to the center back. The garment fits closer to the figure than does the basic garment. Darts (or gathers) are controlled by the midriff under the bust.

Pattern Plot and Manipulation

Use the Contour Guide Patterns or follow the plot and measurements given.

Figure 1

- Trace patterns side by side and mark guidelines 7 (back) and 4 (front).
- Draw the bust circumference. Remove patterns and connect guidelines.
- Square a line from the center front touching the dart leg under the bust. Label A to B.
- Side seam measures 3/4″ less than A to B. Mark.
- Center back measures 1 1/4″ less than A to B. Mark and square a short line.
- Draw a curved styleline from the dart leg to center back, blending with the square line.
- Contour the bust dart and trim the broken line area.
- Trim the broken line area of the back dart to styleline only.
- Separate patterns at the side seam and cut through empire styleline.

Figure 1

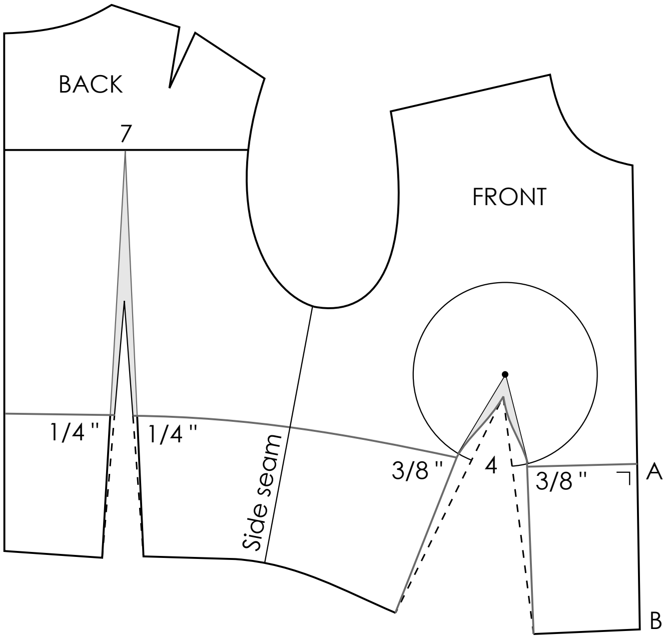
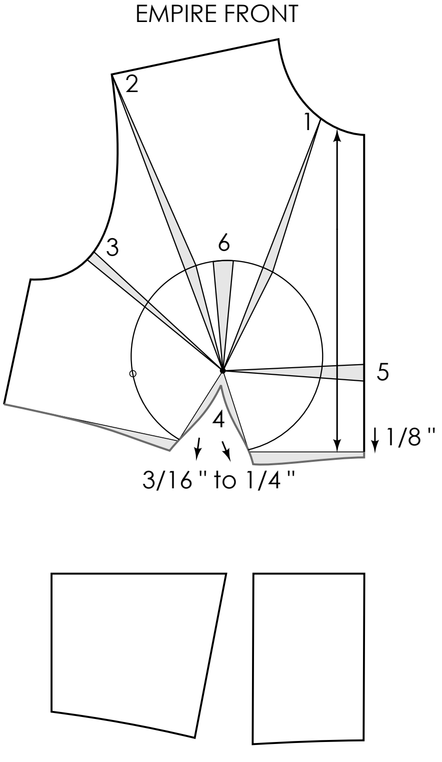


Figure 2 Front

- Retrace bodice. Include all contour guidelines for future reference (shaded areas).
- Extend dart legs 3/16 to 1/4 inch and center front 1/8 inch. (Additional length is needed when fitting under the bust.)
- Draw a blending curve line across bottom. True dart legs.
- Draw grainline.

Figure 2


EMPIRE FRONT
2
1
3
6
5
4
1/8 "
3/16 " to 1/4 "

Midriff front sections

Figure 4 Midriff Front

- Close dart legs. Tape.
- Trace on fold and blend.
- Draw grainline.
- Cut from paper.

Figure 4

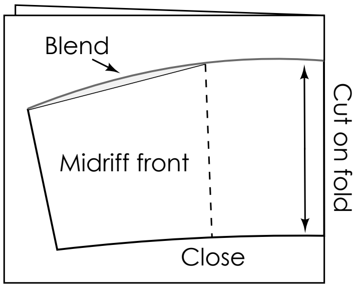
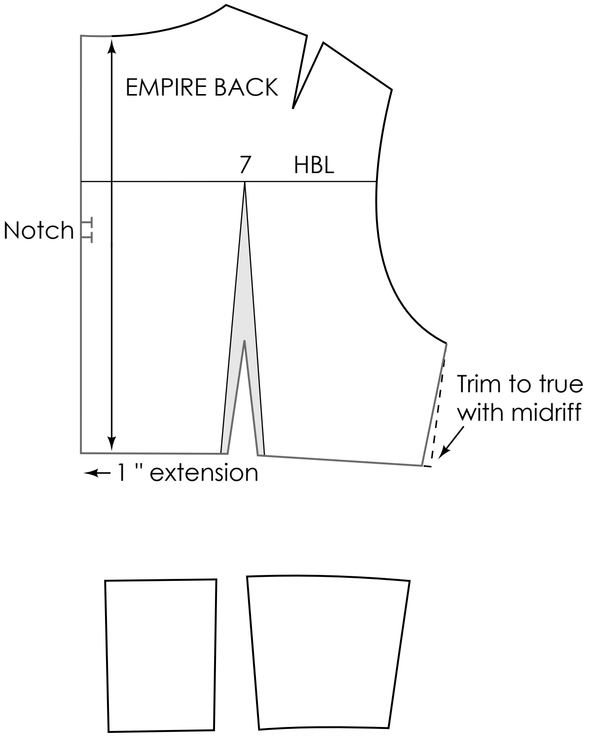

Blend
Midriff front
Cut on fold
Close

Figure 3 Back

- Trace back. Include the HBL line and guideline 7.
- Extend center back 1 inch.
- Use original dart intake. Excess from guideline 7 is removed from side seam when midriff is trued to bodice (broken line).
- Draw grainline.

Figure 3

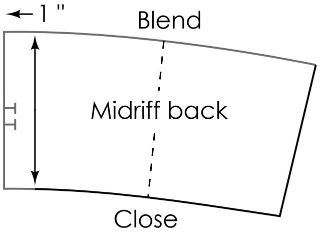

EMPIRE BACK
7
HBL
Notch
Trim to true with midriff
1 " extension

Midriff back sections

Figure 5 Midriff Back

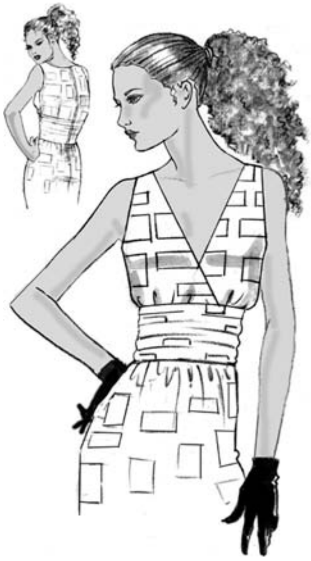
- Close dart legs. Tape.
- Retrace and blend.
- Extend center back 1 inch.
- True patterns and draw grainline.

Figure 5

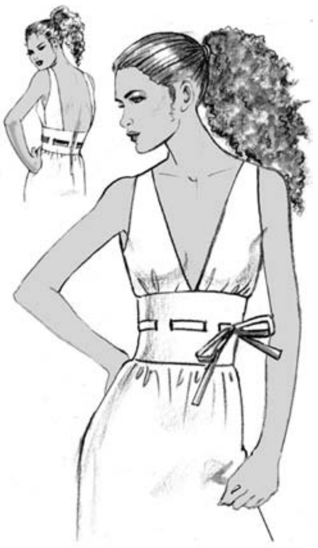

1 "
Blend
Midriff back
Close

Empire with Shirred Midriff

Design 1



Design 2



Pattern Plot and Manipulation

Use the Contour Guide Patterns, or follow plot and measurements given.

Figures 1 and 2

- Trace front and back empire patterns. (If not available, see the Classic Empire section two pages back.)
- Transfer guidelines 1 and 5. Mark shoulder slope guide 1/4 inch down.
- Remove patterns and connect guidelines.

Front

- Extend empire line out from center front 2 1/2 inches. Label A.
- Mark B 1 1/2 inches from shoulder tip.
- Connect A to B.
- Extend guideline 5 to styleline.

Back

- Mark B 1 1/2 inches from shoulder tip and mark 1/4 inch down.
- Mark C 3 inches below center back neck. Square a short line.
- Draw curved neckline from C to B.

Design Analysis: Designs 1 and 2

Design 1 features a shirred midriff. Centers overlap, giving a V-neck effect, and gather under the bust. The gathered cummerbund is held in place by a midriff shell. Pattern is based on the Classic Empire pattern. Design 2 is given as a practice problem. Design other variations for additional practice.

The V-neck style is on bias and will stretch. The guidelines are increased to offset the stretch.

Figure 1

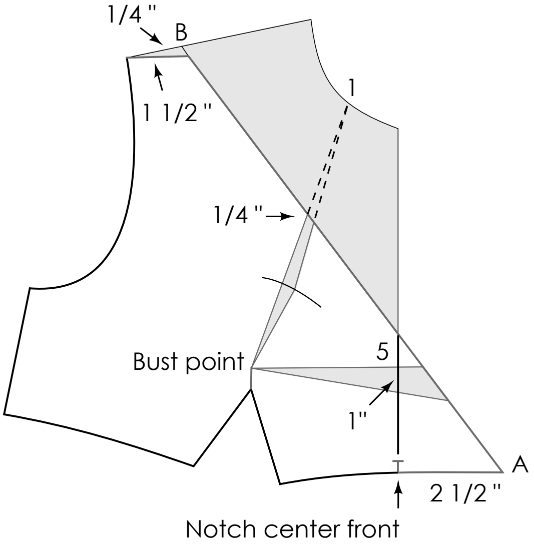
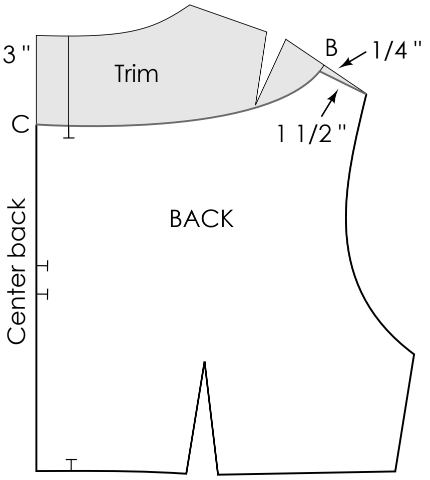


Figure 2



Figures 3 and 4

Front

- Cut guidelines and dart point to, not through, the bust point. Overlap guideline 1 and guideline 5.
- Retrace patterns (broken line represents original pattern.
- Draw blending curve line from A to B and under bust.
- Mark 1 1/2 inches out from each dart leg for gather control notches. (Open space equals length of dart legs.)
- Draw center front grainline and notch.

Back

- Blend dart; notch 1 1/4 inch for gathers control; draw grainline.

Figure 3

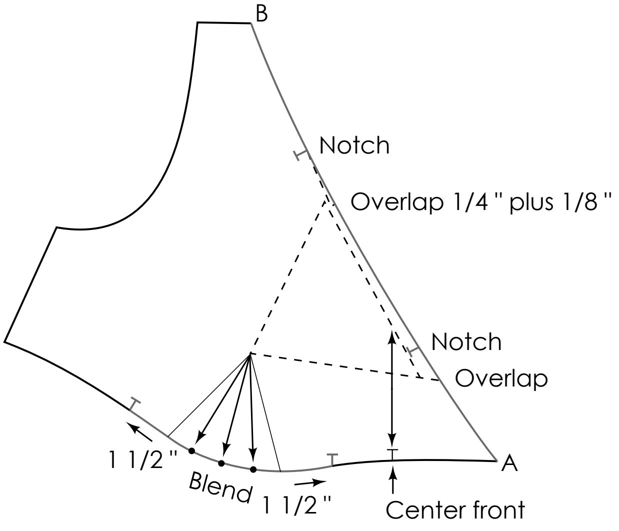
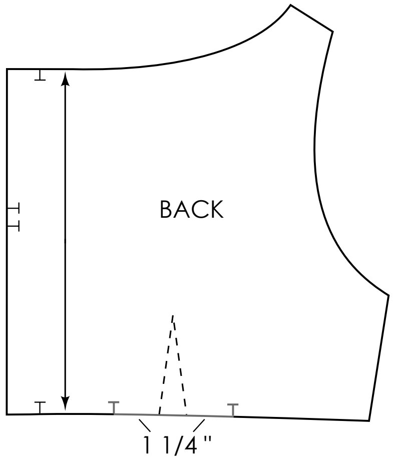

B
Notch
Overlap 1/4 " plus 1/8 "
Notch
Overlap
A
1 1/2 "
Blend
1 1/2 "
Center front

Figure 4



Figures 5 and 6

- Use original midriff pattern as a base for supporting the gathered midriff.

Figure 5

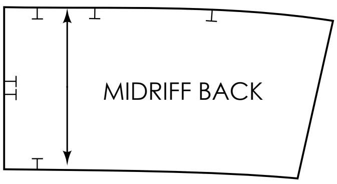
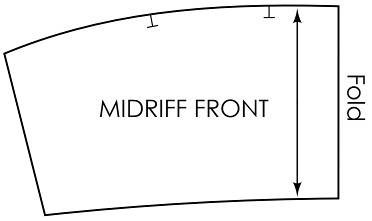

MIDRIFF BACK

Figure 6


MIDRIFF FRONT
Fold

Figures 7 and 8 Cummerbund

- Place center front of midriff on the fold of the paper and trace. Label A and B. (Broken line indicates waist of midriff.)
- Shift midriff downward until top of the midriff touches B. Trace the bottom and side of cummerbund.
- Using skirt curve, draw the side seam.
- Repeat for back; add 1 inch for zipper.
- True side seams. (They must be of equal length.)
- Draw parallel or bias grainline. If bias, remove 1/2 inch from side seams to compensate for stretch (not illustrated).
- True patterns and complete for test fit.

Figure 7

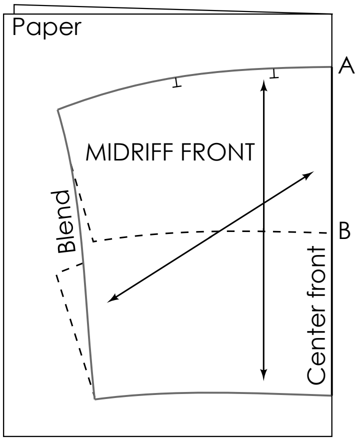
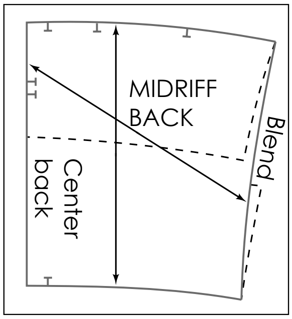
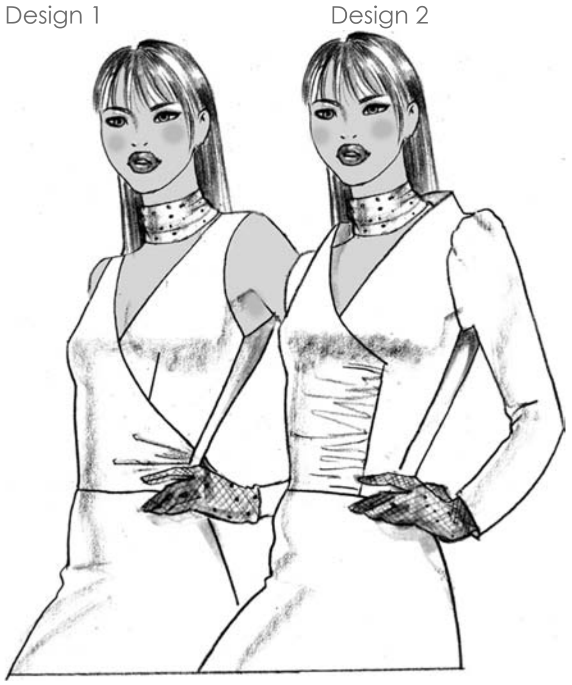

Paper
A
MIDRIFF FRONT
Blend
B
Center front

Figure 8


MIDRIFF BACK
Blend
Center back

SURPLICE (OR WRAP) DESIGNS

Surplice designs have right and left sides that cross over each other. The underneath section of a lapped side can be the same pattern shape, or the underneath side can be controlled by a dart. The overlap section may be designed as gathers, tucks, or pleats. The style requires a full pattern and special instructions (right-side-up). Design 1 has a controlled lapped section. Design 2 is for practice.



Pattern Plot and Manipulation

Use the Contour Guide Patterns or follow the plot and measurements given.

Figure 1

- Trace the front pattern on fold.
- Transfer guideline 1 (intake increased to offset bias stretch) and the shoulder and side seam guides.
- Remove the pattern and connect guidelines.
- Cut pattern from paper and unfold.
- Mark A 1 1/2 inches from shoulder tip and down 1/4 inch.
- Mark B 2 inches up from side waist.
- Draw a curved line from A to B, touching dart point on the right side.
- Draw a slash to mid-armhole from bust point.
- Cut from paper and trim shaded area.

Figure 2 Back

- Trace back pattern and transfer shoulder and side seam guides.
- Mark C 1 1/2 inches from shoulder tip and down 1/4 inch to eliminate shoulder dart excess.
- Mark D 1 1/2 inches down from center back neck. Square a line and draw a curved line to C.
- Draw 1-inch center back extension.
- Cut pattern from paper and trim shaded area.

Figure 1

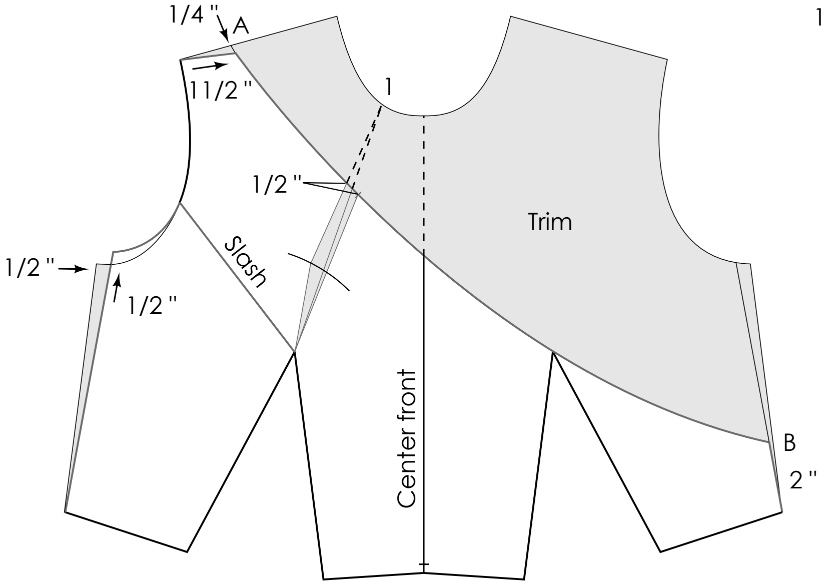
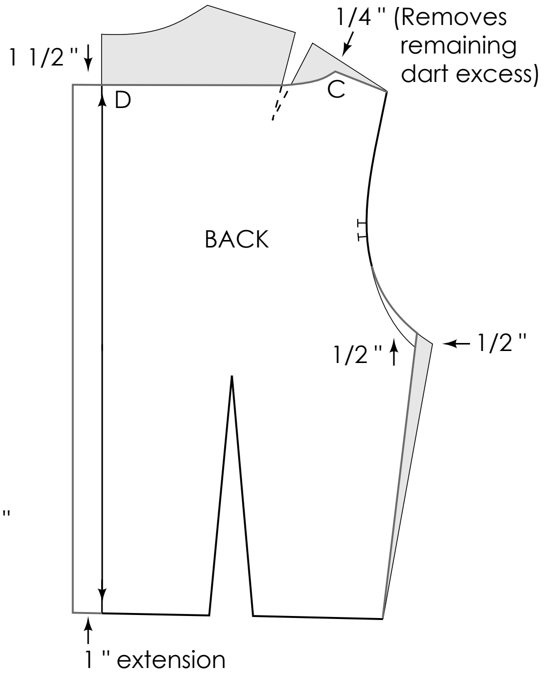


Figure 2

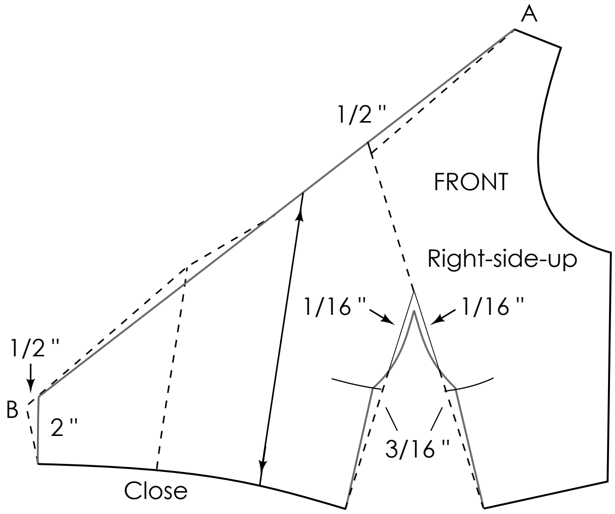


Pattern for Left Side

Figure 3

- Slash guideline 1 to, not through, the bust point and overlap 1/2 inch. Tape.
- Close the waist dart. Tape.
- *Turn pattern over.* Trace and remove pattern.
- Mark 1/2 inch in from B and draw a line to waist. Trim.
- Draw a straight line from B to A.
- Shape dart legs to contour the bust.
- Label traced pattern *right-side-up*.

Figure 3


A
1/2 "
FRONT
Right-side-up
1/16 "
1/16 "
1/2 "
B
2 "
3/16 "
Close

Pattern for Right Side

Figure 4

- Cut slash line from mid-armhole to, not through, the bust point.
- Close the waist dart. Tape.
- Draw slash line from bust to 1 inch below point B.
- Draw a blending line from A to B and trim pattern (shaded area).

Figure 4

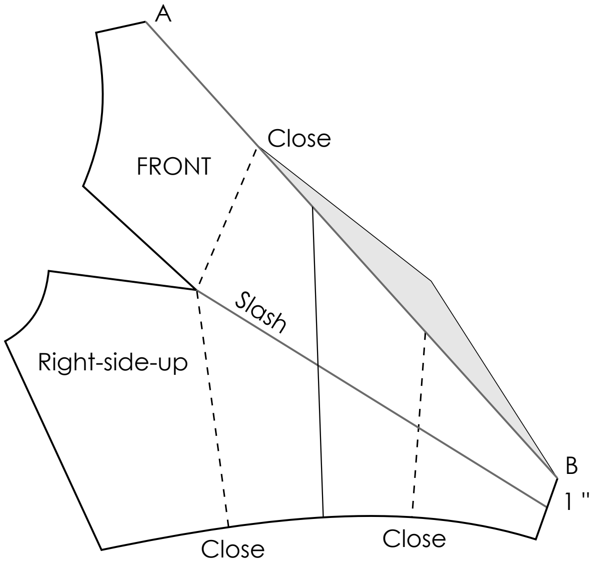

A
Close
FRONT
Slash
Right-side-up
B
1 "
Close
Close

Figure 5

- Cut slash line to, not through, bust point.
- Close mid-armhole plus 1/4 inch and trace.
- Blend open space between dart legs.
- Label *right-side-up*.

Figure 5

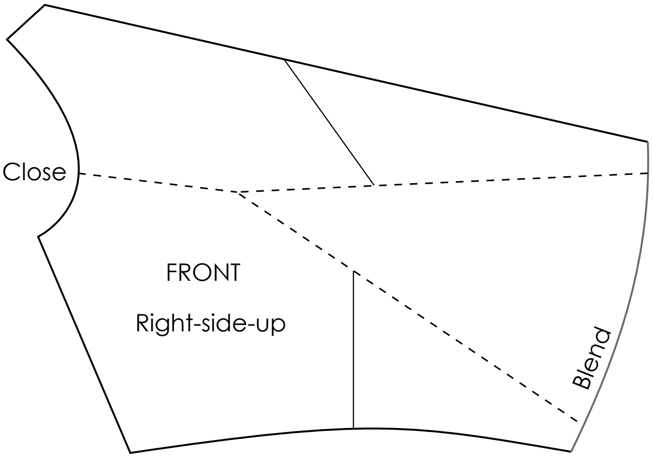
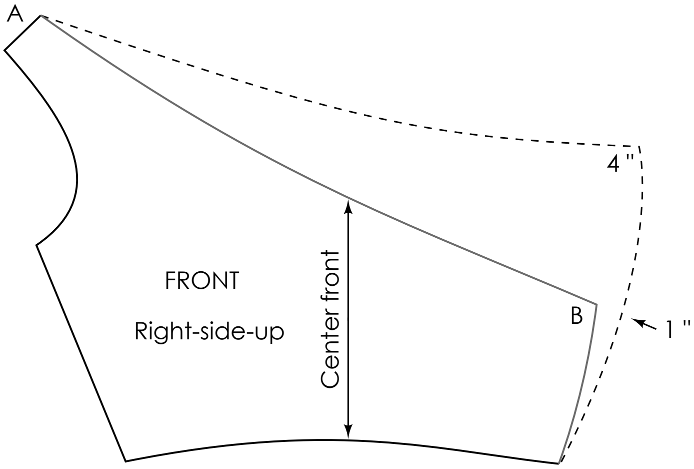

Close
FRONT
Right-side-up
Blend

Figure 6

- After the test fit, if it is necessary to eliminate part of the fullness or to reduce the length of the A-B line, pin unwanted excess and reshape styleline. See the measurement suggested.

Figure 6


A
4 "
FRONT
Right-side-up
Center front
B
1 "

OFF-SHOULDER DESIGNS

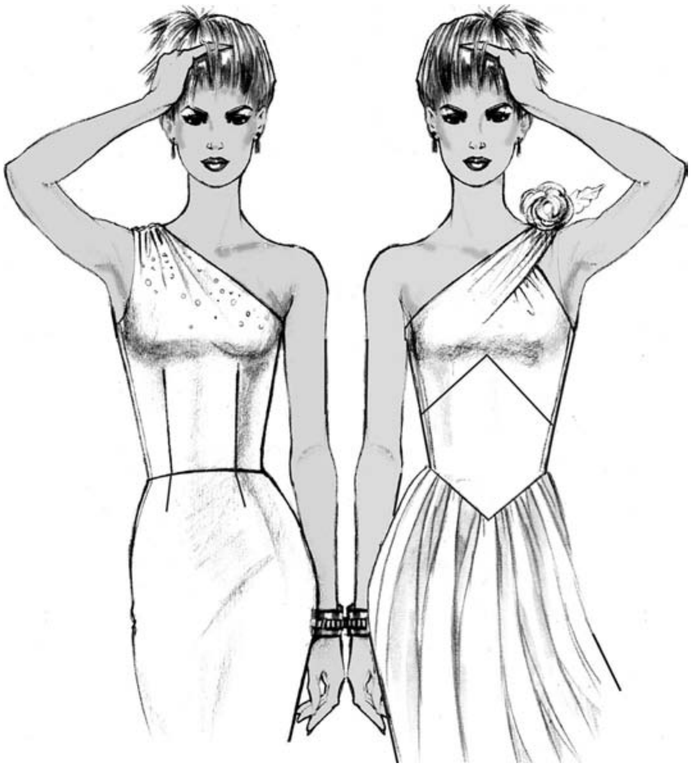
Gathered Shoulder

Design Analysis: Designs 1 and 2

Design 1 has a gathered shoulder, with the other side of the design fitted under the armhole. Part of the dart excess is gathered; the remaining excess is waist dart control. Design 2 is for practice. Design other variations for an additional challenge.

Design 1

Design 2



Pattern Plot and Manipulation

Use the Contour Guide Patterns or follow plot and measurements given.

Figure 1

- Trace front pattern on fold. With a push pin, transfer guideline 6. Include the side seam and shoulder guides. Remove pattern.
- Cut pattern from paper. Unfold.
- Connect guidelines, marking guideline 6 on shoulderless side of the pattern only.
- Mark X 2 inches from shoulder tip and down 1/4 inch.
- Mark Y and Z 1 inch below armholes on side seam guidelines.
- Draw line from X to Z.
- Blend armhole to point Y.
- Draw slash lines from bust points to shoulder.
- Cut pattern from paper.

Figure 1

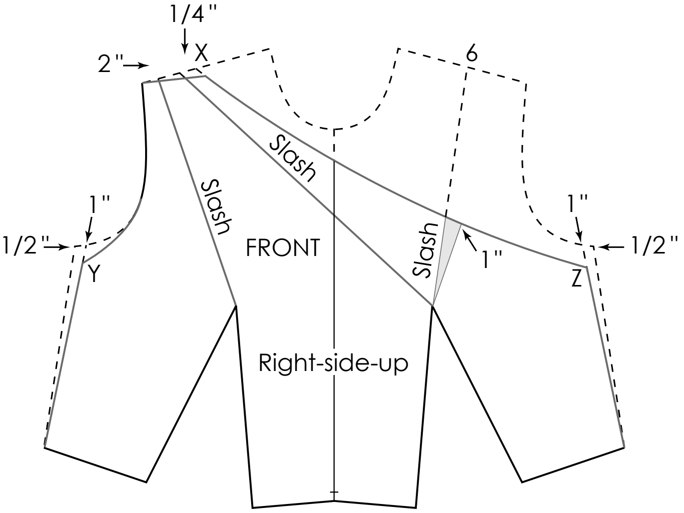


Figure 2

- Cut slash lines to, not through, the bust points.
- Place on paper.
- Close dart legs 1 1/2 inches A to B (broken lines indicate location of original darts).
- C–D = A–B space.
- Close guideline 6 (broken line). Tape.
- Trace pattern.
- Blend styleline and shoulder for gathers.
- Draw grainlines. Label *right-side-up*.

Figure 2

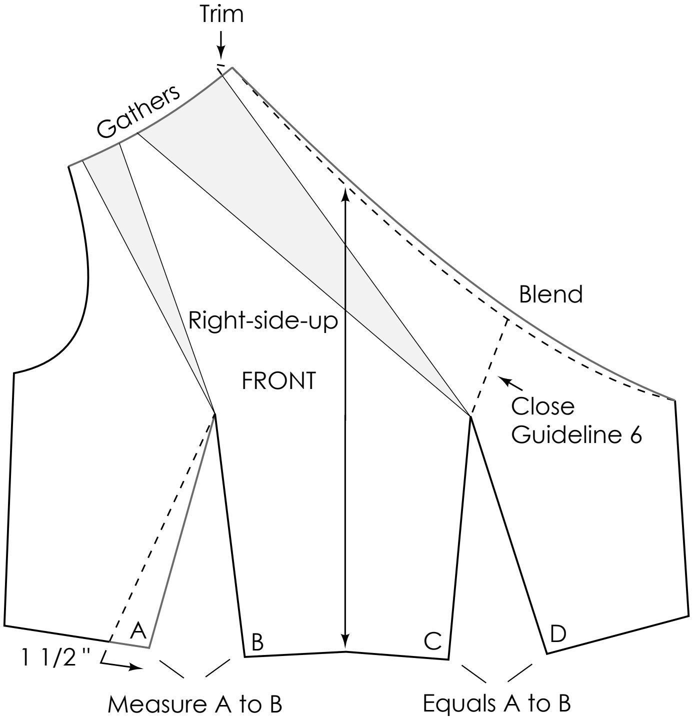
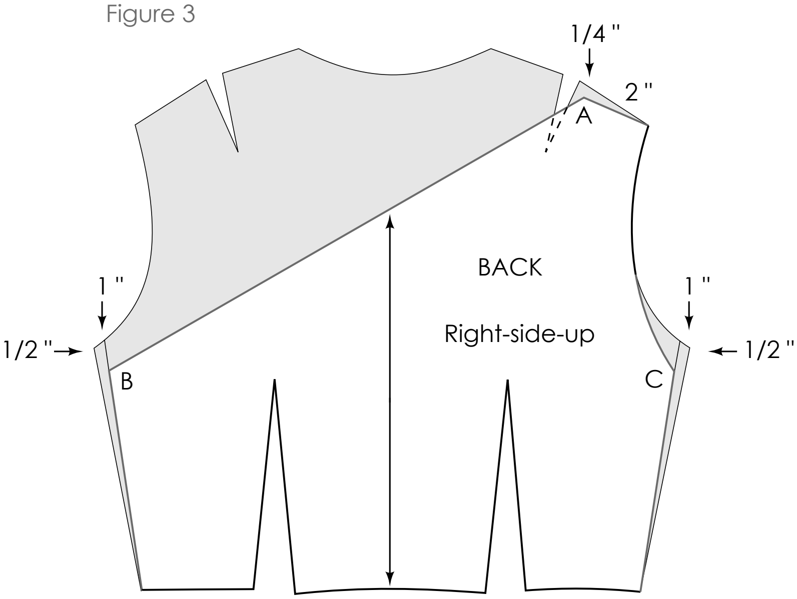

Trim
Gathers
Blend
Right-side-up
FRONT
Close
Guideline 6
A
B
C
D
1 1/2 "
Measure A to B
Equals A to B

Figure 3 Back

- Repeat styleline and armhole shape instruction given for the front pattern (Figure 1). Label pattern *right-side-up*.
- Cut shaded area from pattern.
- Complete patterns for test fit.

Figure 3


1/4 "
2 "
A
BACK
Right-side-up
1 "
1/2 "
B
1 "
1/2 "
C

HALTERS

Halters are designed with bare shoulders and are created by cutting the armhole deeply into the shoulderline. In Design 1, the halter cut is extended for tie around the neck. The back is low-cut. Design 1 is illustrated and Design 2 is a practice problem.

V-Neck Halter

Pattern Plot and Manipulation

Use the Contour Guide Patterns or follow the plot and measurements given.

Figure 1

- Trace front pattern. With a push pin, transfer guidelines 2, 4 (for modified fit), and 5. Include side seam guide. Remove pattern. Connect guidelines.

Neck

- Mark neck A and connect to guideline 5 (at bust level).
- Mark B 1 1/2 inches from point A.
- Draw an 8-inch line up from point A parallel with the center front line. Square and connect to B.
- Draw an inward-curved line from point B ending 1/2 inch or lower below armhole on side seam guide.
- Cut pattern from paper.

Design 1 Design 2

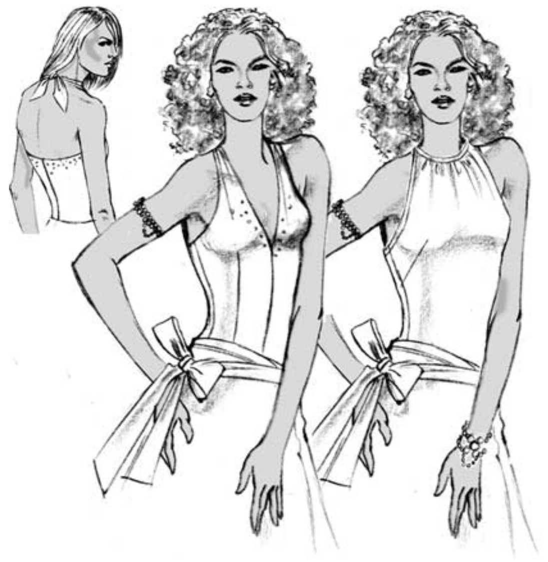


Figure 2

- Slash guidelines 2 and 5 to, not through, the bust point. Overlap, tape, trace, and blend.
- Draw the grainlines.

Figure 1

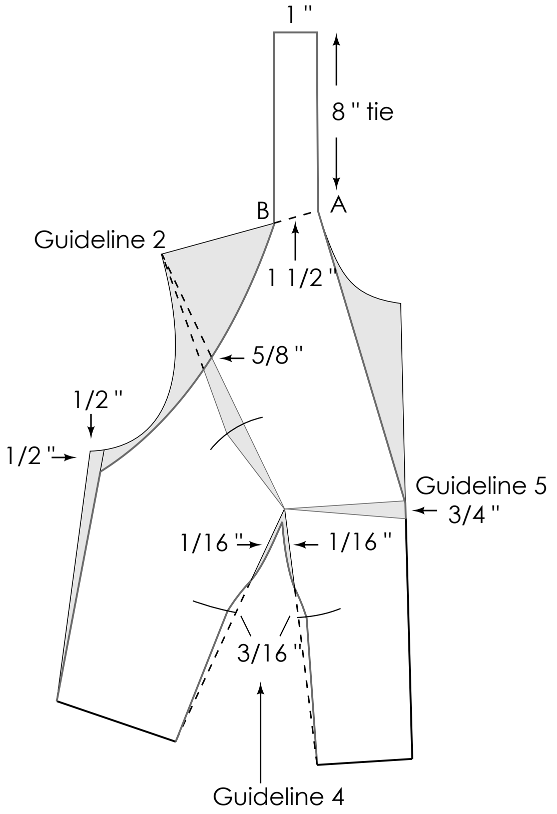
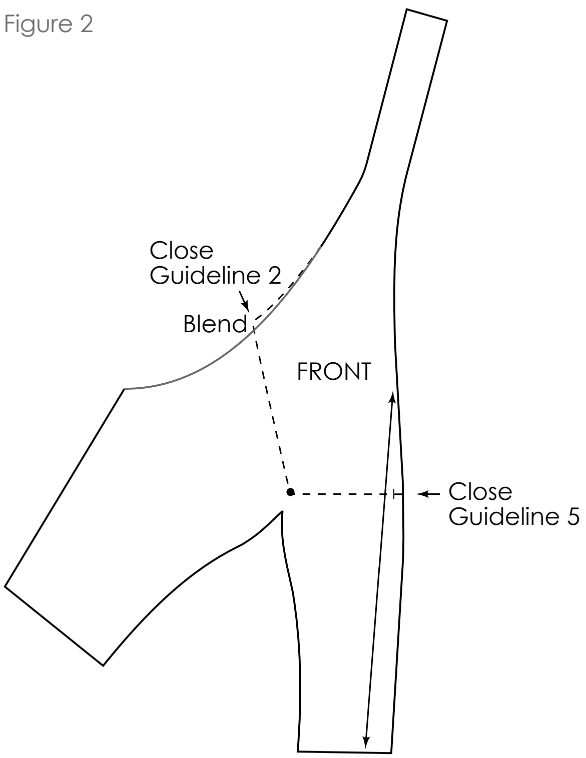

1 "
8 " tie
B
A
Guideline 2
1 1/2 "
5/8 "
1/2 "
1/2 "
Guideline 5
3/4 "
1/16 "
1/16 "
3/16 "
Guideline 4

Figure 2


Close Guideline 2
Blend
FRONT
Close Guideline 5

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

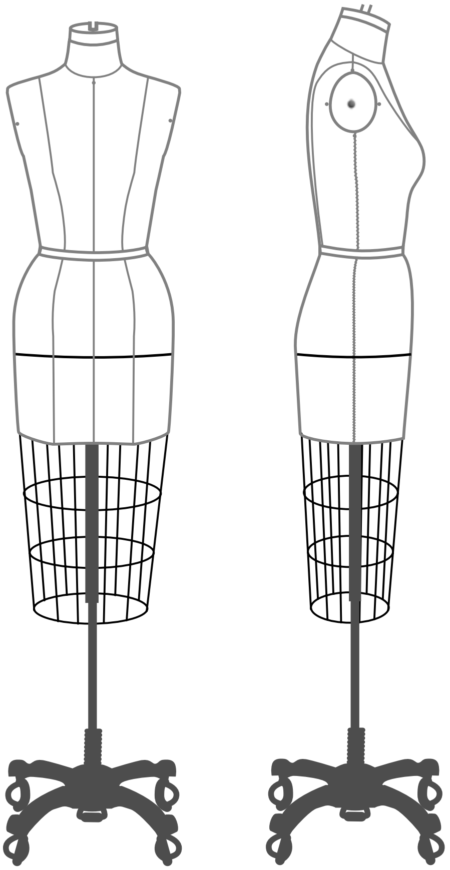
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____
2. Waist: _____
3. Abdomen: _____
4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
   B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
    Front = 1" (2 darts 1/2 to 5/8")
    Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

*Measuring the Arm

Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

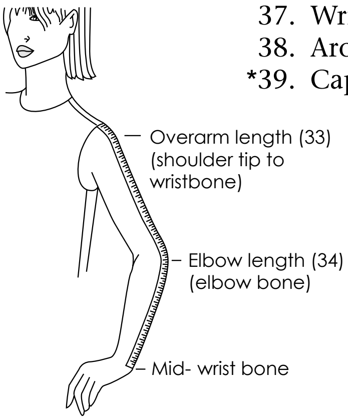
Personal Figure Variations

A. Head height relationship:
   Bust _____ Waist _____
   Crotch _____ Knee _____
B. Bust/back/chest relationship:
   Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
   Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
   Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
   Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
   Front: _____ Back: _____
M. Bust/waist = _____
   Waist/hip = _____
   Bust/hip = _____
N. Other variations: _____

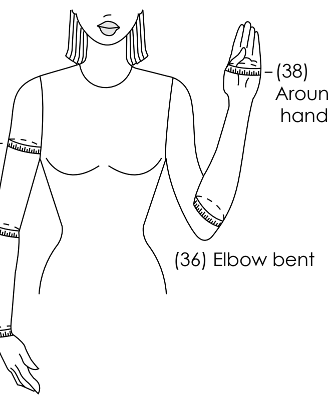
Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____

Length


Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone

Circumference



This page intentionally left blank

Collars

From Chapter 10 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

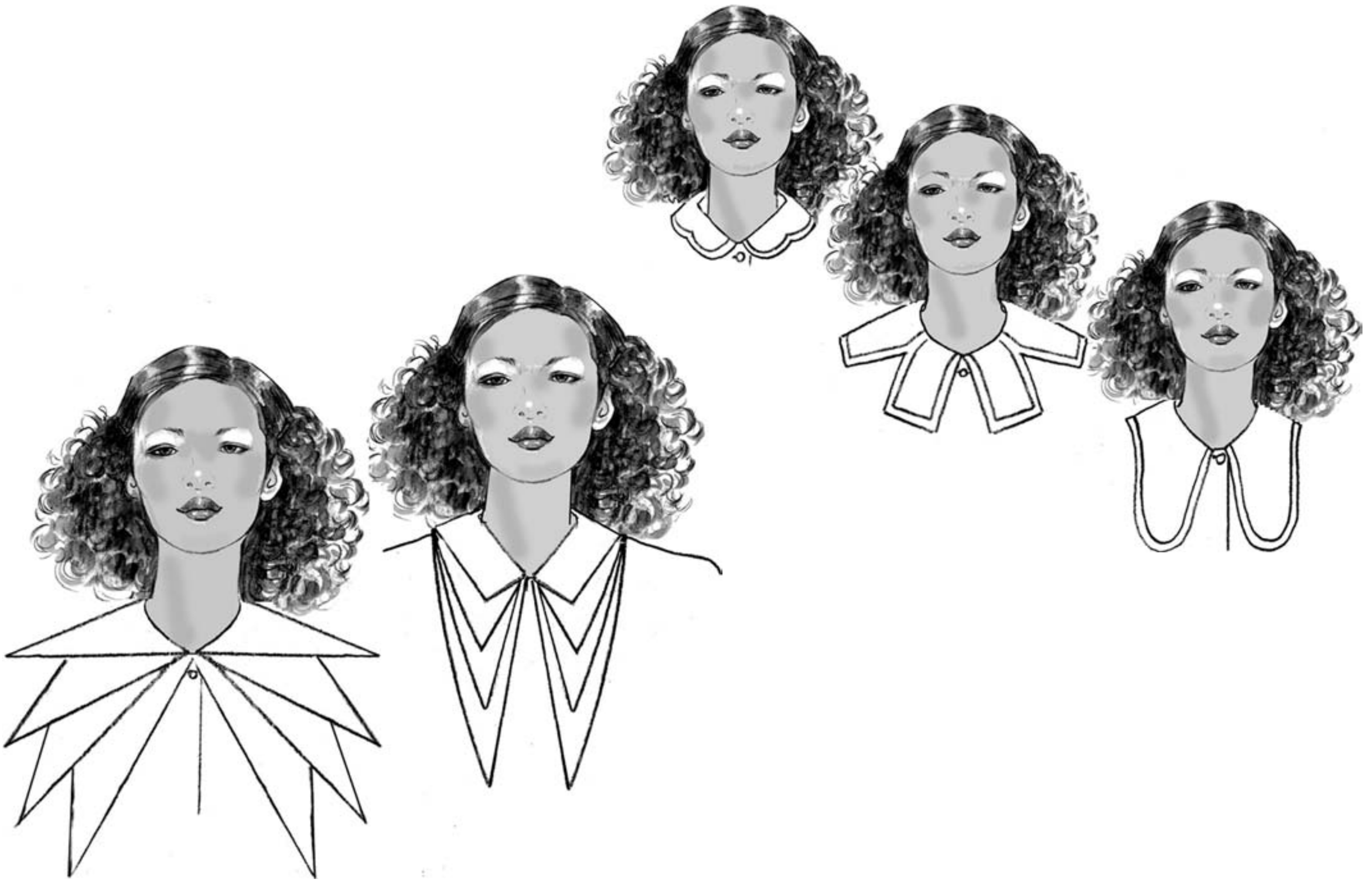
Collars

INTRODUCTION
COLLAR TERMS
COLLAR STAND AND ROLL TYPES
COLLAR CLASSIFICATIONS
BASIC SHIRT COLLAR FOUNDATION
  Straight Collar
  Undercollar
  Folded Basic Collar
  Collar Variations
  Fit Problems of the Collar
PETER PAN COLLARS
  Principle
  Relationship of the Collar's Stand, Width, and Neckline
  Three Basic Peter Pan Collars
  Peter Pan with 1-Inch Stand (Full-Roll)
  Peter Pan with 1/2-Inch Stand (Partial-Roll)
  Peter Pan with Flat-Roll
SAILOR COLLAR
  Basic Sailor Collar
  Sailor with Extension
  Sailor with Inset
COLLARS WITH DEEP, OPEN NECKLINES
  Collar for V-Neck
  Collar for Stylized Neckline
MANDARIN COLLAR
  Basic Mandarin—Design 1
  Mandarin Collar Variations
COLLAR WITH STAND
WIDE COLLAR AND STAND
COLLAR AND STAND AWAY FROM THE BASIC NECKLINE
ALL-IN-ONE COLLAR AND STAND
ROLL COLLARS
  Turtle Neck
  Roll Collar with Cutaway Neck
COLLAR DESIGN VARIATIONS
SELF-EVALUATION TEST

INTRODUCTION

A collar encircles the neck and frames the face, offering great opportunities for design variations. Collars may be developed close to or away from the neckline. They may be wide, narrow, flat, or high and with or without an attached stand. The collar edge may be stylized or may follow a basic shape—it may be round, curved, scalloped, square, or pointed (long or short) in any direction.

The choice of a collar design should complement and enhance the style and purpose of the garment.



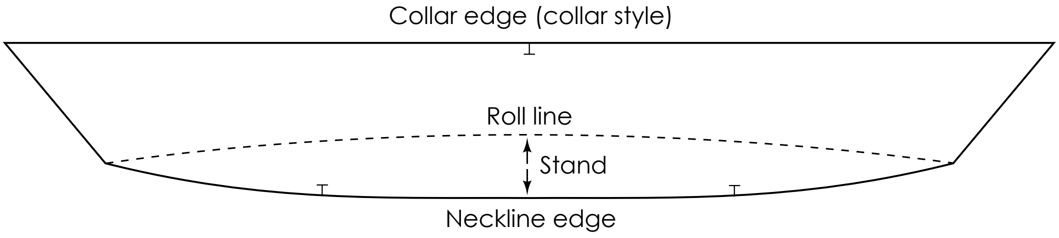
COLLAR TERMS

Neckline edge. The side of the collar that is stitched to the neckline of the garment.

Collar edge. The outer edge or design of the collar.

Collar stand. The height at which the collar rolls over itself.

Roll line. The fold-over at the collar stand.



COLLAR STAND AND ROLL TYPES

The roll line of the three collars illustrated in Figures 1, 2, and 3 indicates where the height of the stand stops and the roll line begins.

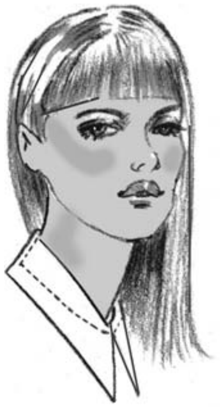


Figure 1
1-Inch
Stand (Full-Roll)

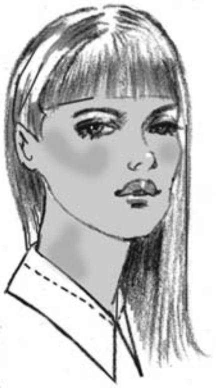


Figure 2
1/2-Inch
Stand (Partial-Roll)

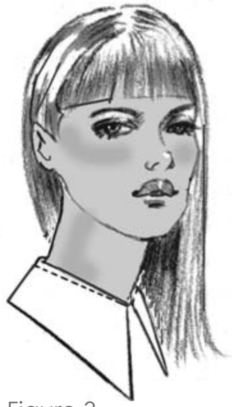


Figure 3
1/8-Inch
Stand (Flat-Roll)

COLLAR CLASSIFICATIONS

Regardless of the collar design, the neckline edge generally has one of two basic shapes:

1. Contrary to the neckline curve of the form or garment. This type of collar will spring open when unbuttoned—convertible (Figures 4 and 5; prototype—the basic shirt collar).
2. Closely follows the curve of the neckline of the form or garment. This type of collar will stay in place when unbuttoned—nonconvertible (Figure 6; prototype—the Peter Pan collar).

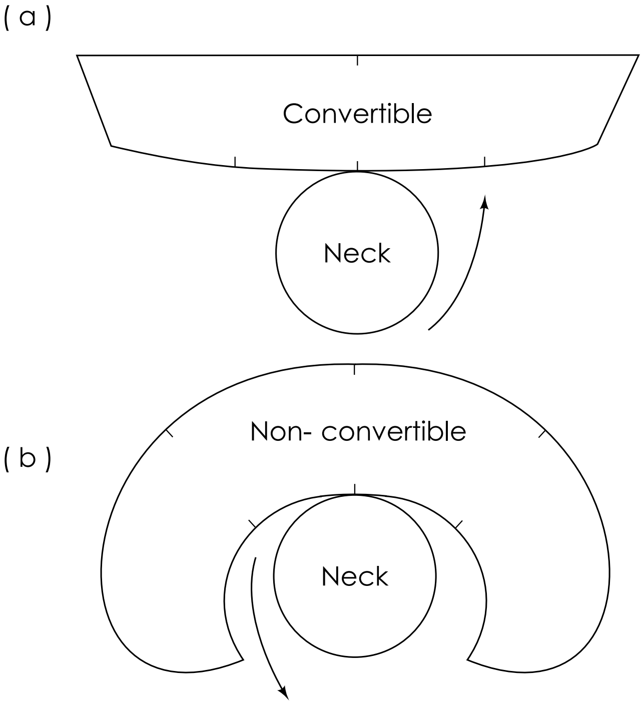


Figure 4

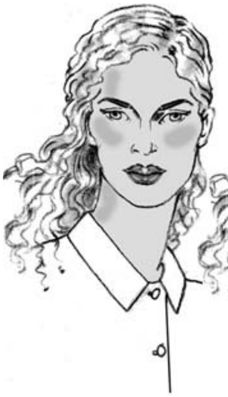


Figure 5

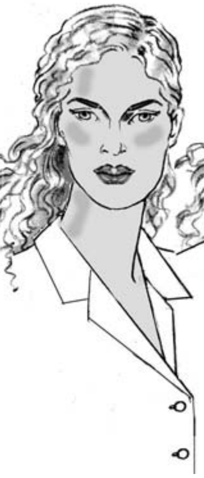
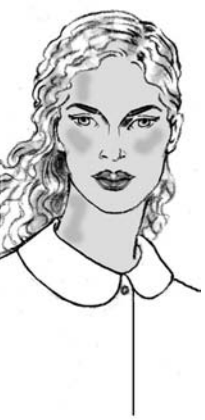


Figure 6



BASIC SHIRT COLLAR FOUNDATION

The basic convertible collar may be worn open or closed. The collar has a 1-inch stand at the center back, and its width varies from 2 1/2 to 3 inches. It can be developed with a seam along the collar edge or folded and cut as either a one-piece or two-piece (center back seam) collar. The grainline may be straight, crosswise, or bias, depending upon the design effect desired when cut in stripes, checks, or plaids. The basic collar can be a base for other designs.

Measurements Needed

Center back neck: ________________

Center front neck: ________________

Total: ________________

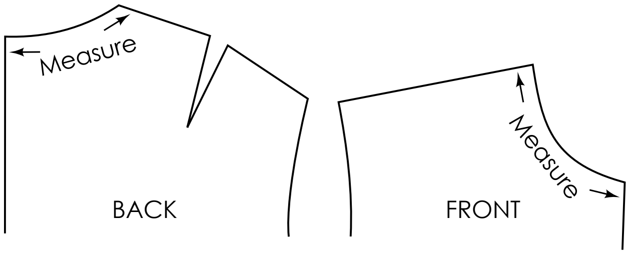

Measure
Measure
BACK
FRONT

Figure 1

- Square a line in the center of the paper. Mark and label the following locations:

  A to B = 3 inches (collar width).

  B to C = Total neck measurement. Label C.

  B to D = Center back to shoulder. Mark for notch.

Figure 1

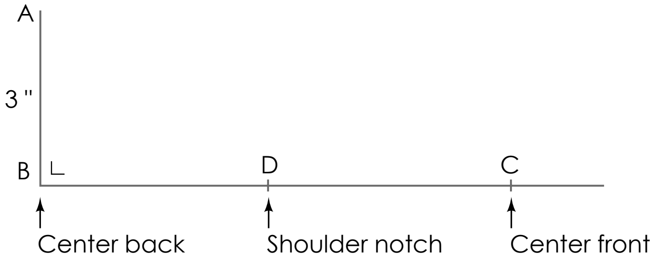
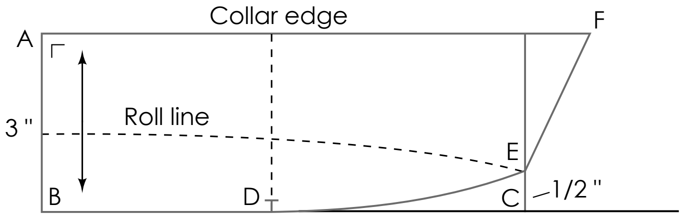

A
3 "
B
D
C
Center back
Shoulder notch
Center front

Figure 2

- Square a line up from C.
- Mark E 1/2 inch from C.
- Draw a curved line from E blending with D.
- Square a line from A passing 1 inch or more from guideline C. Label F.
- Draw a line from E to F.
- Draw a grainline and cut the collar from the paper.

Figure 2

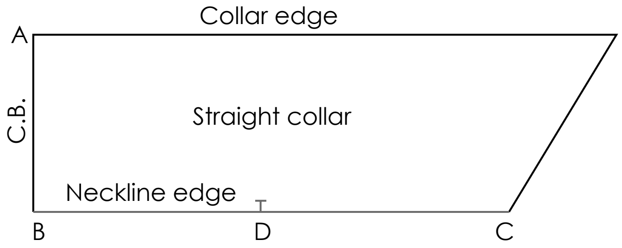

Collar edge
F
A
3 "
Roll line
E
B
D
C
1/2 "

Straight Collar

Figure 3

- Develop a straight collar using instructions given in Figures 1 and 2, except that the neckline edge is straight. The collar's width may be increased to 3 or 4 inches.

Figure 3


Collar edge
A
C.B.
Straight collar
Neckline edge
B
D
C

Undercollar

The undercollar pattern is made shorter in width than the uppercollar. Two types are given to prevent the undercollar from rolling out beyond the stitchline. The undercollar is drafted from the uppercollar. (The broken line in the illustrations indicates the original collar.) The undercollar should be notched 1/4 inch out from each side of the center back at the neckline edge. The following instructions apply to the development of all undercollars.

Figure 4

- Trace the uppercollar.
- Trim 1/8 inch and more for bulky fabrics. Square a short line at the center back and gradually draw the line to zero at the collar point.

Figure 4

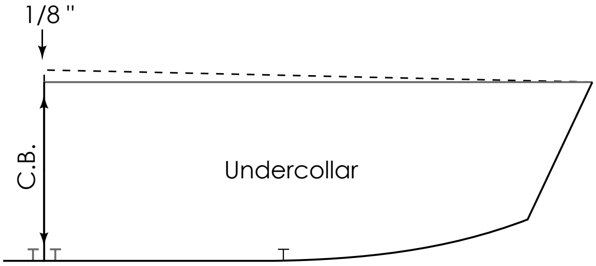


Figure 5

- On collars with an uneven styleline, trim the excess from the neckline edge of the collar.
- Follow the same instructions as given in Figure 4.

Figure 5

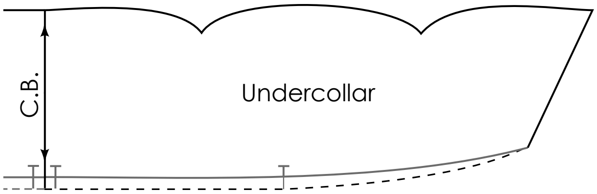


Figure 6

- The collar is illustrated with a center back seam.
- The grainline can be drawn straightgrain, crossgrain, or bias.

Figure 6

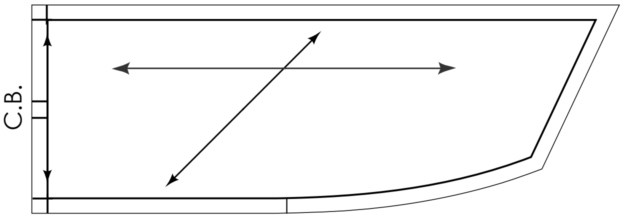
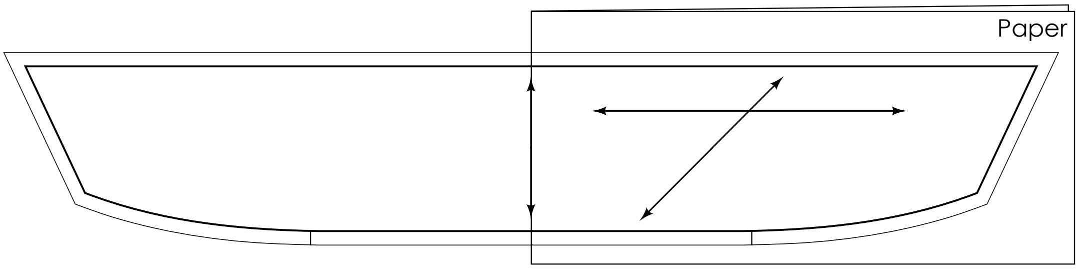


Figure 7

- The collar is cut on the fold.

Figure 7



Folded Basic Collar

Figure 1

- Fold paper lengthwise.
- Square a guideline down from fold in the center of paper.
- Place the collar on paper with center back on guideline and collar edge along the fold line.
- Trace the collar. Cut out the collar, ending at center guideline.

Figure 1

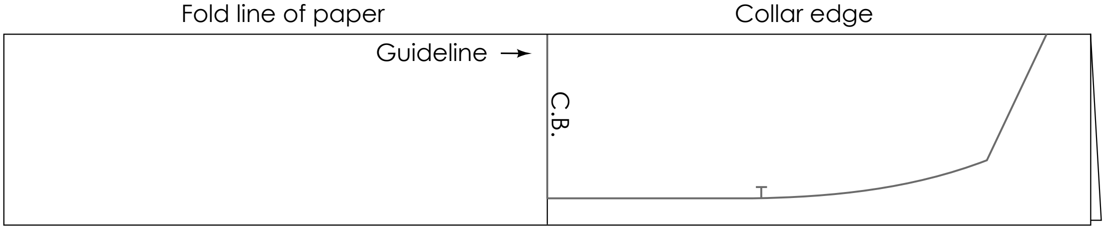
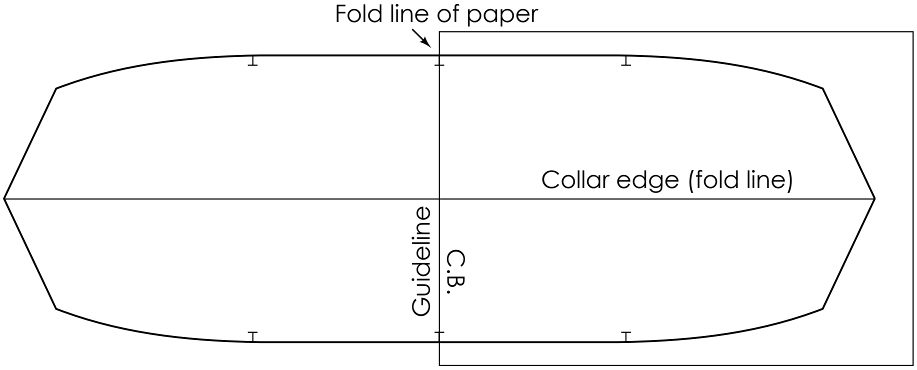

Fold line of paper
Collar edge
Guideline →
C.B.

Figure 2

- Unfold the paper. Refold the collar and paper on the guideline.
- Trace the collar. (Completed collar is shown.)
- Cut from paper; notch; draw grainline.

Figure 2

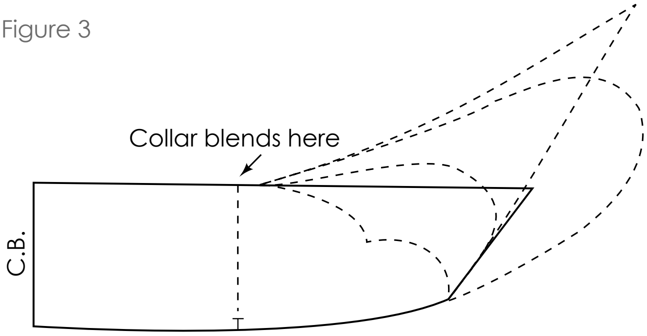

Fold line of paper
Collar edge (fold line)
Guideline
C.B.

Collar Variations

Figure 3

- Collar designs can vary from the basic collar. Collar variations begin and blend approximately in line with the shoulder notch.

Figure 3


Collar blends here
C.B.

Fit Problems of the Collar

Figure 1

- *Problem:* Collar's edge lies above the stitchline at the back neck.
- *Solution:* Increase the collar's edge. Cut three slash lines between the shoulder and the center back to the neckline.

Figure 2

- Allow collar to fall 1/4 inch below stitchline of center back.
- Use tape to secure the slashed areas and measure the opened spaces.

Pattern Correction

Figure 3

- Cut three slash lines from shoulder to center back neck.
- Spread to equal measured spaces. Trace and cut pattern.
- Test fit.

Figure 1

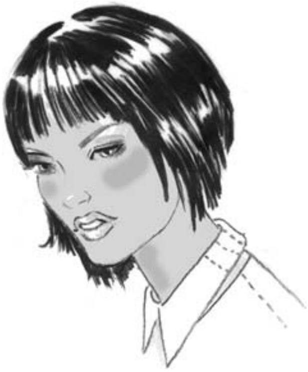


Figure 2

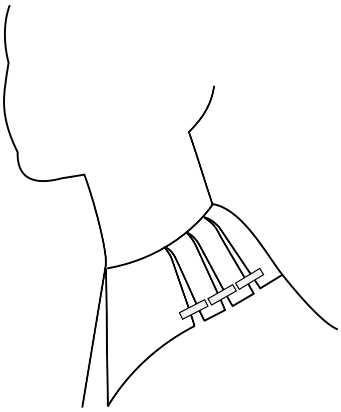


Figure 3

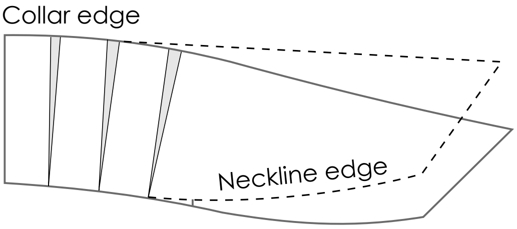


Figure 4

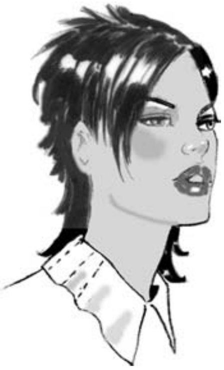


Figure 5

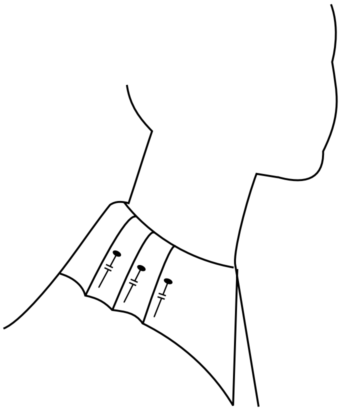


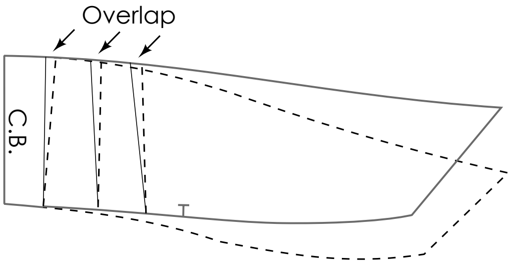
Figure 4

- *Problem:* Collar falls loosely around the garment.
- *Solution:* Decrease the collar's edge.
- Cut three slash lines to the neckline between the shoulder and the center.

Figure 5

- Overlap the slashed parts to take up the excess and pin.
- Remove collar from the garment.

Figure 6



Pattern Correction

Figure 6

- Slash pattern, overlap equal amounts, and tape.
- Trace and cut the pattern.
- Test fit.

PETER PAN COLLARS

The Peter Pan series introduces the principle of the full-roll, partial-roll, and flat-roll collars. Apply this principle to all collar designs that stay in place when unbuttoned.

Principle

The neckline edges of nonconvertible collars are similar in shape to the curve of the form's neckline. The closer in similarity, the lower is the stand of the collar; the less similarity, the higher is the stand.

Relationship of the Collar's Stand, Width, and Neckline

The height of a collar stand is controlled by the amount of overlap at the shoulder tips of the front and back patterns. This patternmaking technique is called the 4 to 1 rule and is illustrated in the development of the Peter Pan collars.

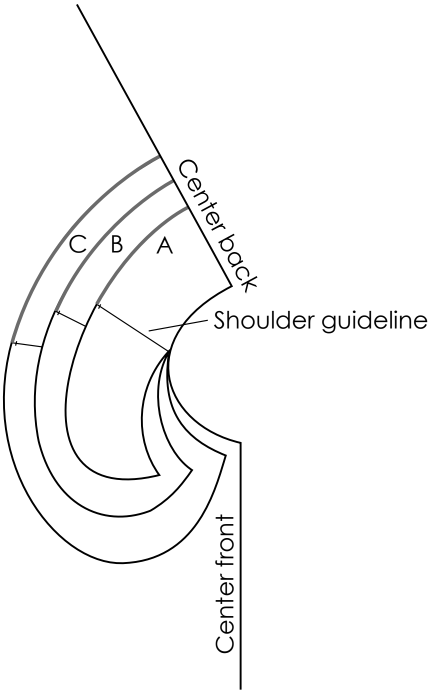
Compare the neckline edge of each collar to that of the basic neckline. Compare the width of each collar to the height of the collar stand.

A—Full-roll: 1-inch stand; 2 3/4 inches wide

B—Partial-roll: 1/2-inch stand; 3 1/2 inches wide

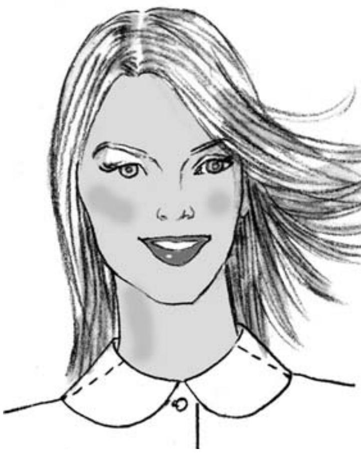
C—Flat-roll: 1/8-inch stand; any width (closest to the shape of the basic neckline)

The width of the collar is limited by the desired height of the collar stand.



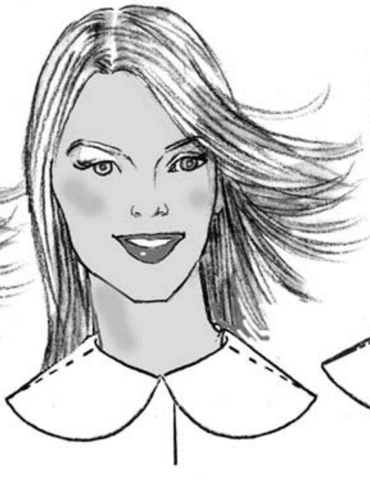
Three Basic Peter Pan Collars

By design, the collar of the Peter Pan is rounded. Figures 1, 2, and 3 illustrate the height of the collar stand and the collar width. The front part of a collar can be designed to any length or width but must blend with the back collar at the shoulderline.



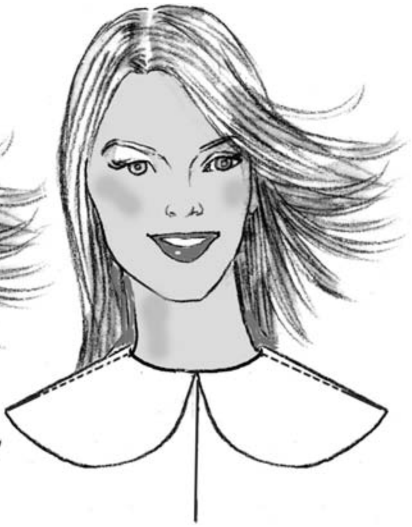
1 " stand (full roll)

Figure 1



1/2 " stand (partial roll)

Figure 2



1/8 " stand (flat roll)

Figure 3

Peter Pan with 1-Inch Stand (Full-Roll)

Pattern Plot and Manipulation

Figure 1

- Trace the back pattern. Place the front pattern on traced copy, touching the neckline and overlapping the shoulder tips 4 inches.
- Trace the neckline and part of the center lines.
- A point will appear at shoulder/neck.

Figure 1

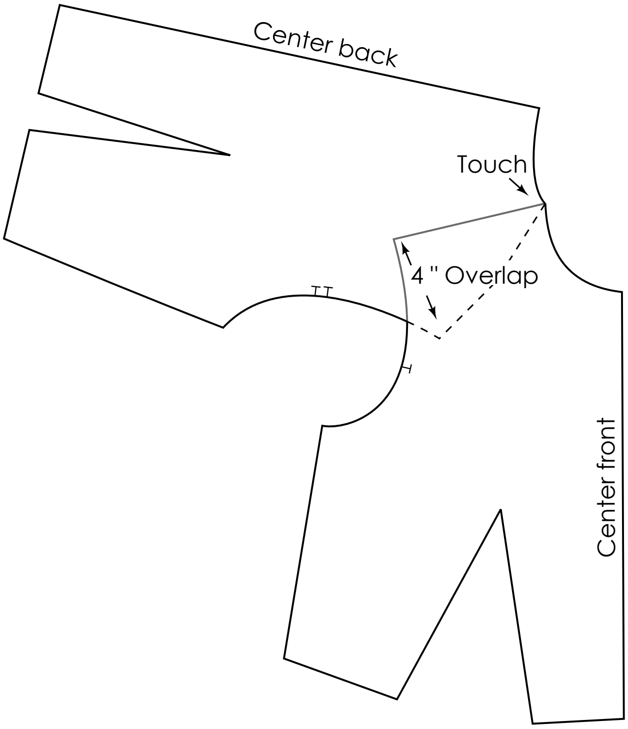

Center back
Touch
4 " Overlap
Center front

Figure 2

- Extend the center back neck 1/8 inch. Draw the neckline through the point ending 1/4 inch below center front.
- Draw style collar parallel with the neckline.
- Cut the collar from the paper.
- Mark a notch at shoulder/neck and where noted.
- Cut from paper and true to the neckline of the garment. Allow an extra 1/16 inch beyond the collar point.

Figure 2

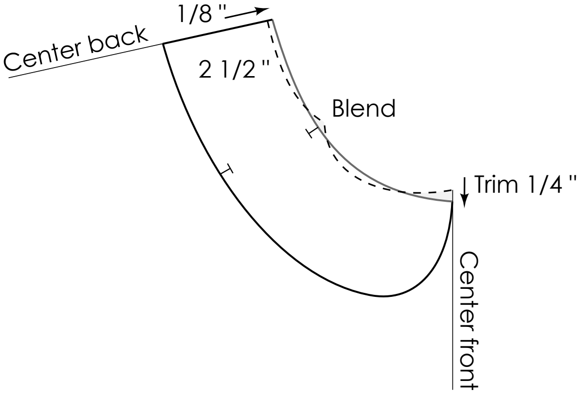

1/8 "
Center back
2 1/2 "
Blend
Trim 1/4 "
Center front

Figure 3

- Trace the collar on fold of the paper.
- Mark center back notches.
- Cut from paper.

Figure 4 Undercollar

- Trace the collar on the fold. Remove the pattern.
- Trim 1/8 inch (shaded area) as illustrated.
- Mark two notches 1/4 inch apart at center back on the neckline edge and one notch on collar's edge.

Figure 3

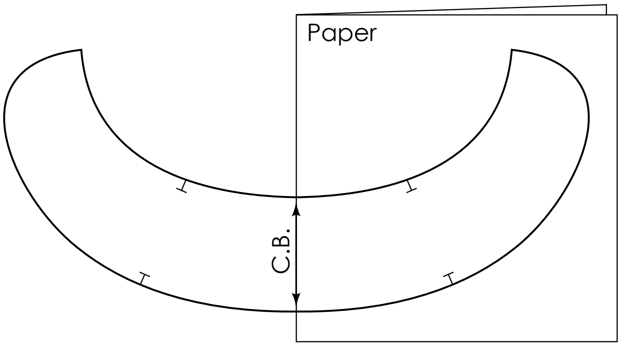
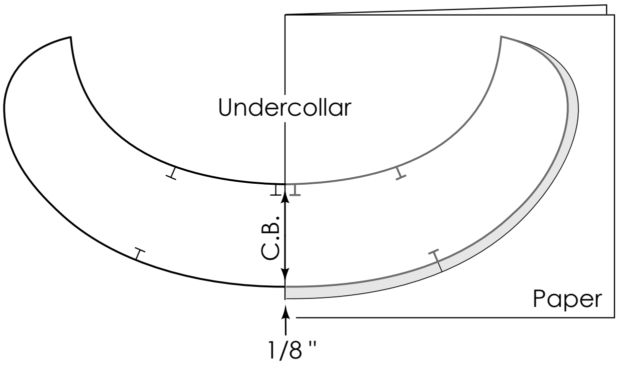


Figure 4


Undercollar
C.B.
Paper
1/8 "

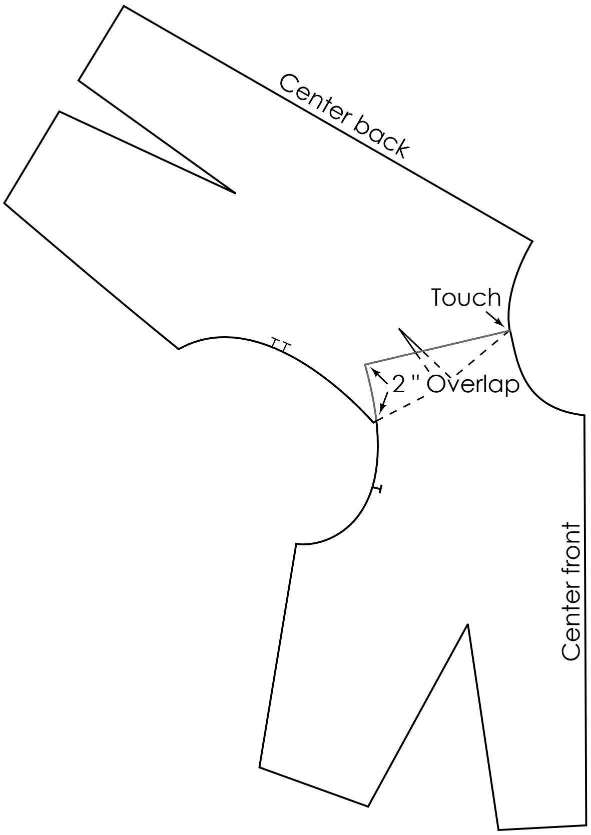
Peter Pan with 1/2-Inch Stand (Partial-Roll)

Pattern Plot and Manipulation

Figure 1

- Trace the back pattern. Place the front pattern on traced copy, touching the neckline and overlapping the shoulder tips 2 inches.
- Trace the neckline and part of the center lines.

Figure 1

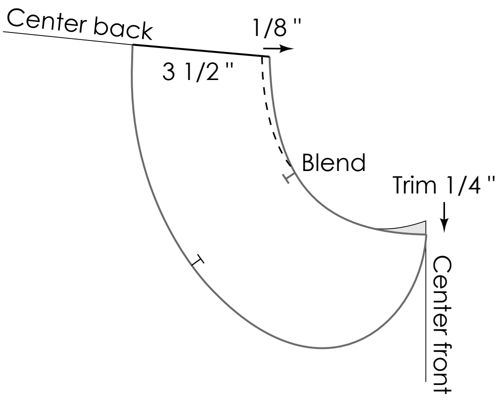

Center back
Touch
2 " Overlap
Center front

Complete the Collar

Figure 2

- Complete the collar as illustrated.

Figure 2


Center back
1/8 "
3 1/2 "
Blend
Trim 1/4 "
Center front

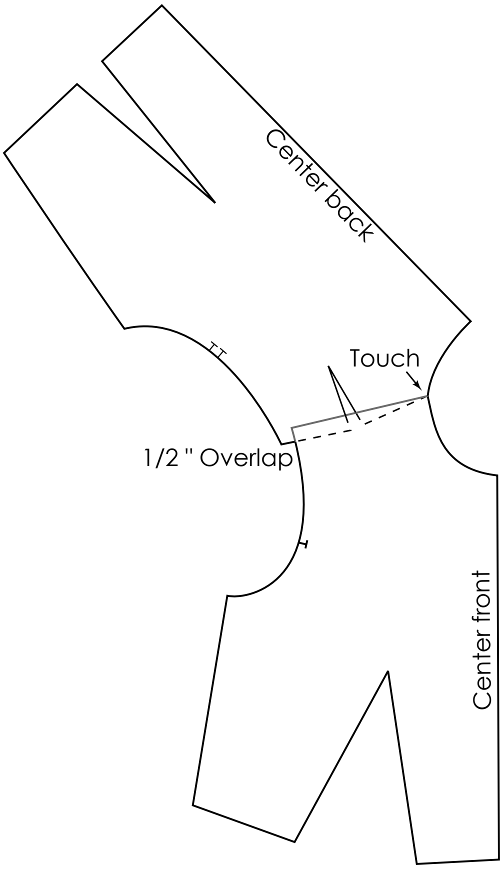
Peter Pan with Flat-Roll

Pattern Plot and Manipulation

Figure 1

- Overlap shoulder tip 1/2 inch and repeat the process.

Figure 1

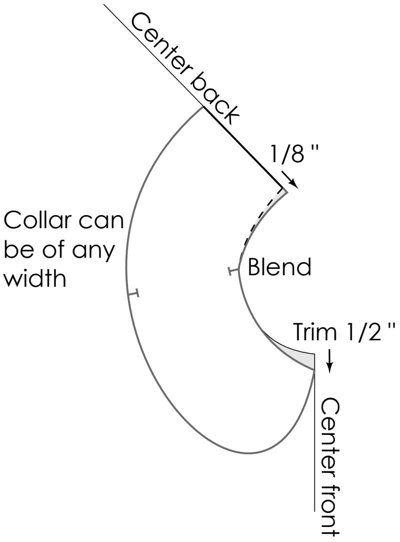

Center back
Touch
1/2 " Overlap
Center front

Complete the Collar

Figure 2

- Complete the collar as illustrated.

Figure 2


Center back
1/8 "
Collar can be of any width
Blend
Trim 1/2 "
Center front

SAILOR COLLAR

The sailor collar was inspired by the sailor's uniform and is based on instructions of the nonconvertible collar.

Basic Sailor Collar

Design 1

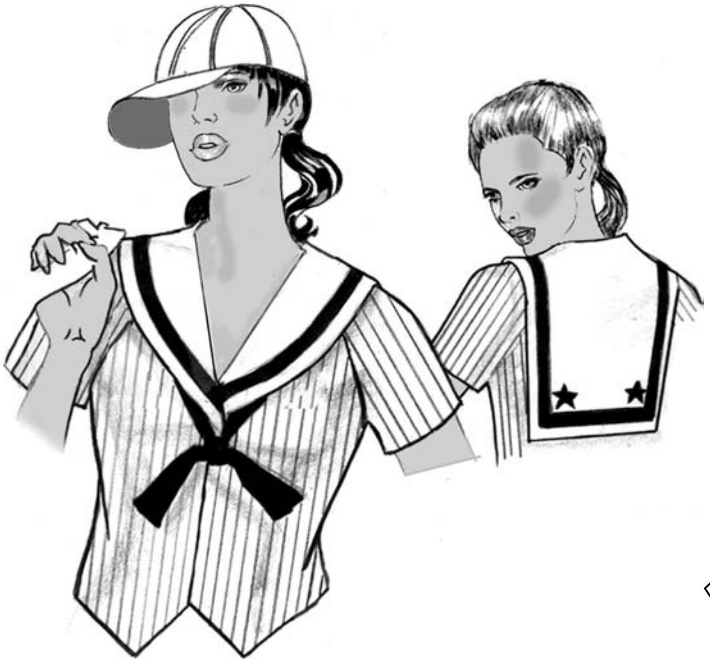
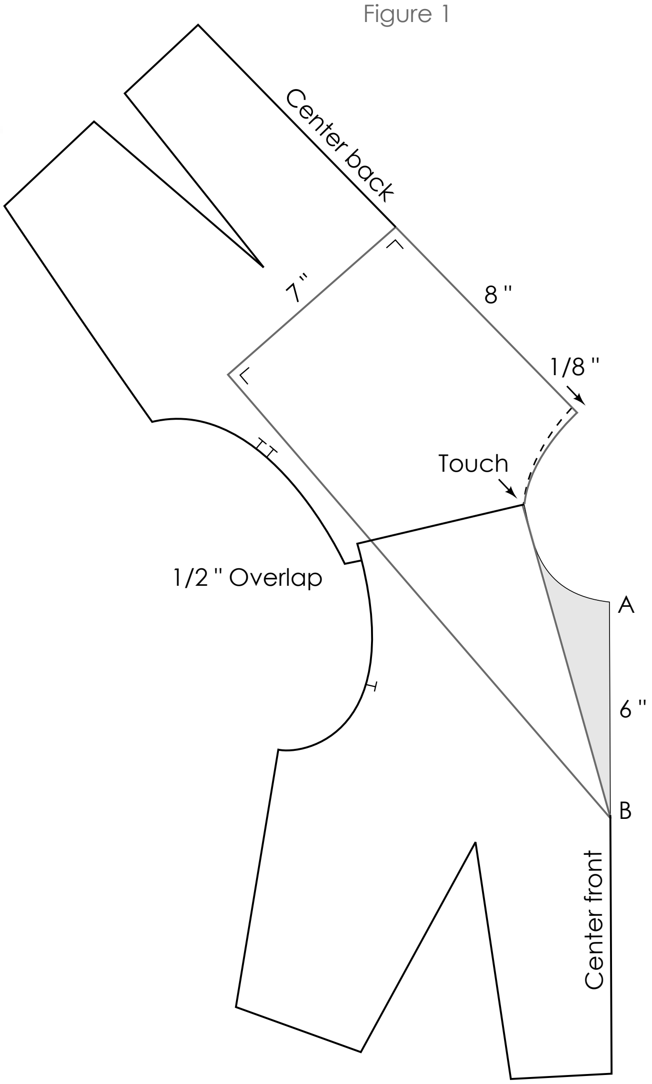


Figure 1



Design Analysis: Design 1

Design 1 features a sailor collar that is squared in back and ends at a V-neckline in front. The tie is detachable. For the pattern development of designs with an extension for button and buttonholes, see Figure 4.

Pattern Plot and Manipulation

Figure 1

- With front and back necks touching, overlap shoulder tips 1/2 inch.
- Trace center front, center back, and neckline. Remove patterns.
- A to B is the depth of the V-neck.
- Develop collar as illustrated.
- Square a line from center back to shoulder, and from the shoulder, connect with B. Blend shoulder area.
- Cut collar from paper.

Figure 2 Completed Collar

- Trace collar on fold. Cut from paper and unfold.
- Draw grainline (broken line = undercollar). If the center front is cut on fold, the collar at center back should be split and seams added.

Figure 2

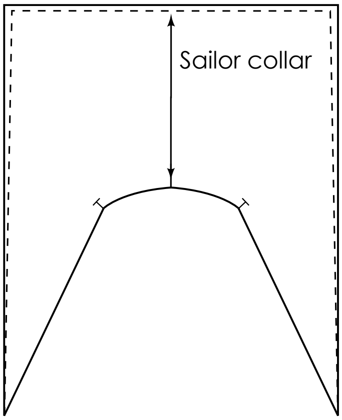
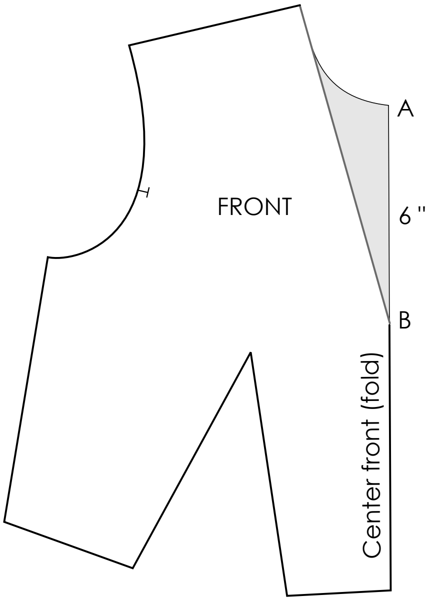

Sailor collar

Figure 3 Completed Bodice on Fold

- Establish sailor neckline on bodice.
- Cut from paper. (Tie not illustrated.)
- Trace center back, draw extension mark buttonhole placement.

Figure 3


FRONT
A
6 "
B
Center front (fold)

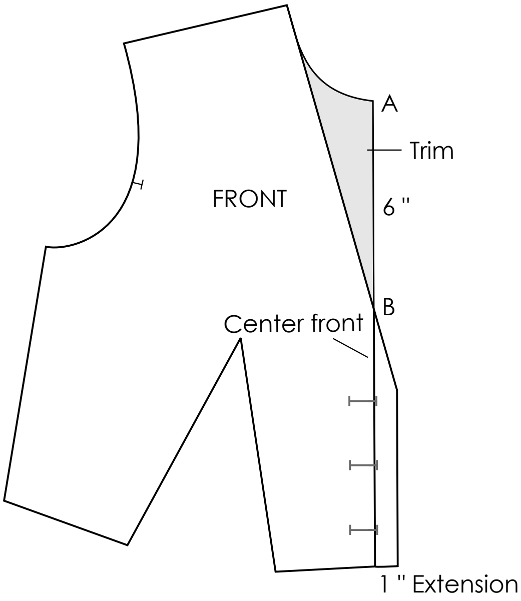
Sailor with Extension

Figure 4

Repeat instructions for Design 1 with the following exceptions:

- Draw a parallel line 1 inch from center front. Draw a line from shoulder neck past B to the extension point and complete the collar.
- Mark buttonhole placement.

Figure 4


A
Trim
FRONT
6 "
B
Center front
1 " Extension

Sailor with Inset

Design Analysis: Design 2

Design 2 is a stylized version of the sailor collar. The inset section in front controls the deep neckline. The sailor tie is part of the collar.

Design 2

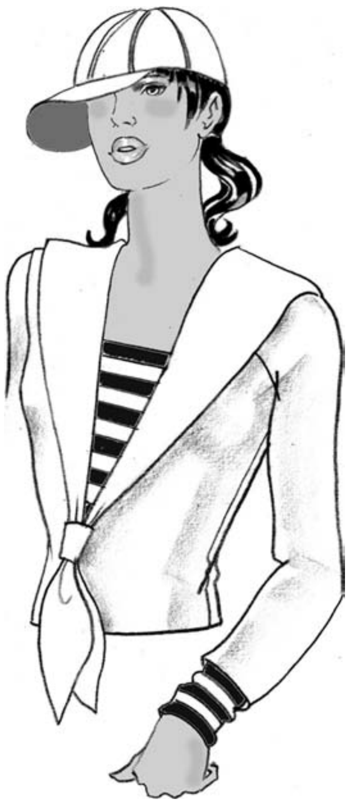


Figure 2 Inset

- Trace wedge-shaped inset sections on fold (lined area).
- Draw a 1-inch extension on one side for opening and for button or snaps. Cut on fold and add 1/4-inch seams.

Figure 2

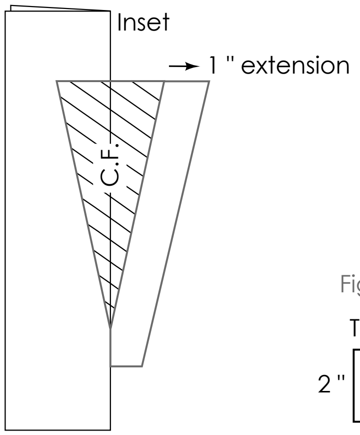
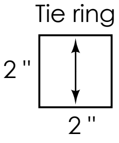


Figure 3



Pattern Plot and Manipulation

Figure 1 Collar

- Develop the neckline from A, B, C, to D. Inset noted as angle lines.
- Extend C line 6 inches past B (tie).
- Square a line in from E and up to shoulder. Continue the line to the length of the tie 2 inches from B.
- Shape the tie ends.
- Cut from paper. Save wedge section from inset.

Figure 1

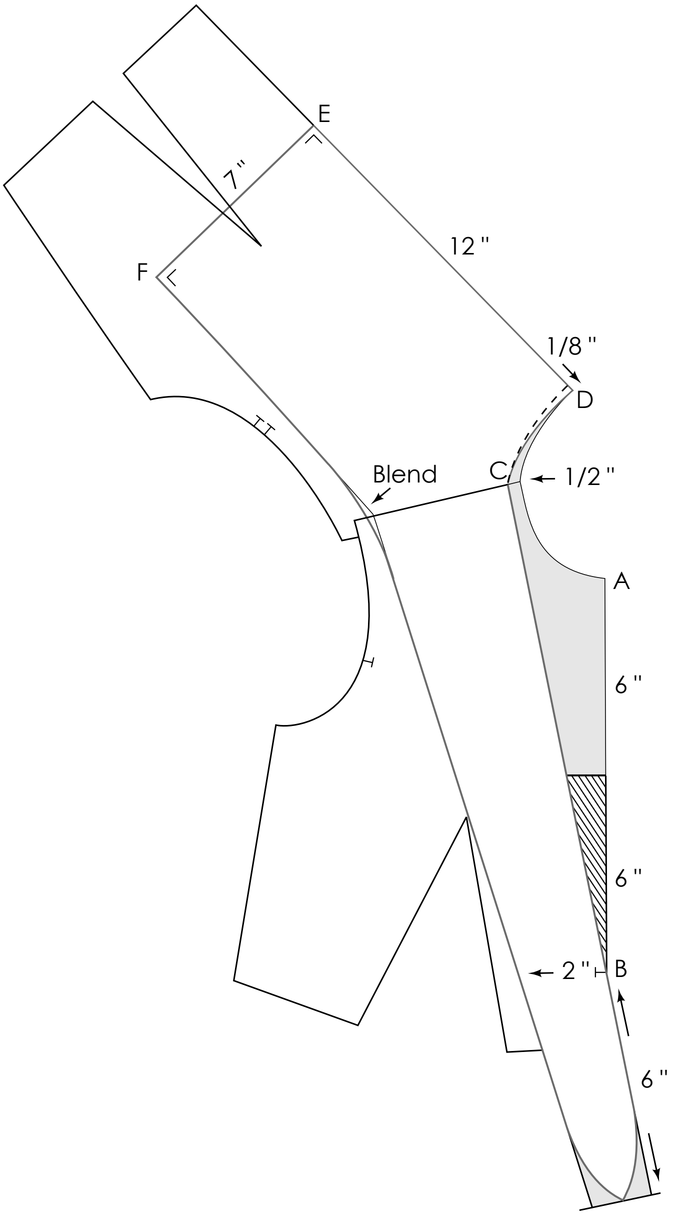


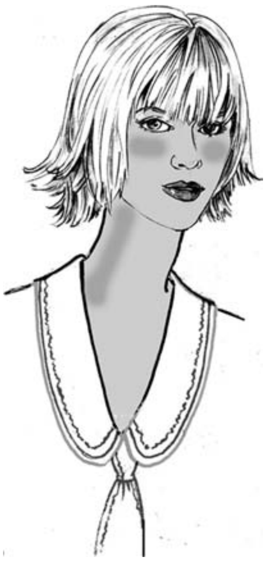
Figure 3 Tie Ring

- Draw a 2-inch square.
- A tie ring can be attached to garment underneath the tie. Pull tie through ring.

COLLARS WITH DEEP, OPEN NECKLINES

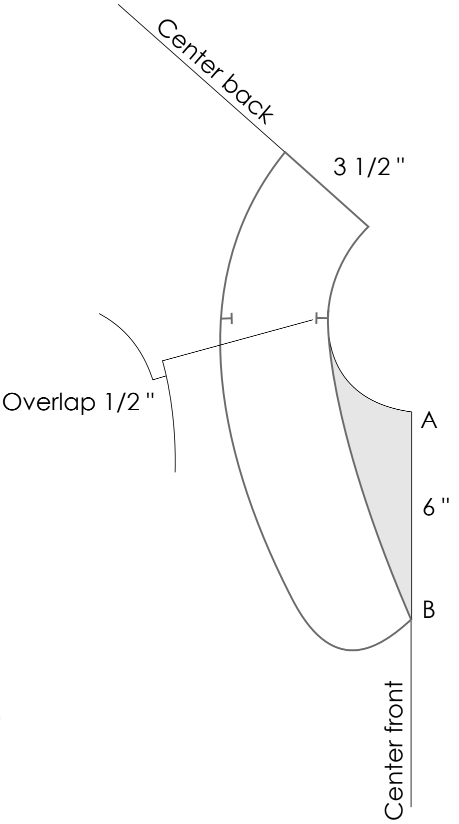
Design Analysis: Designs 1 and 2

Designs 1 and 2 both illustrate collars on an open neckline. In Design 1, the collar with a flat-roll passes shoulder at neck of the garment. In Design 2, the collar with a 1/2-inch stand crosses at mid-shoulder.



Design 1

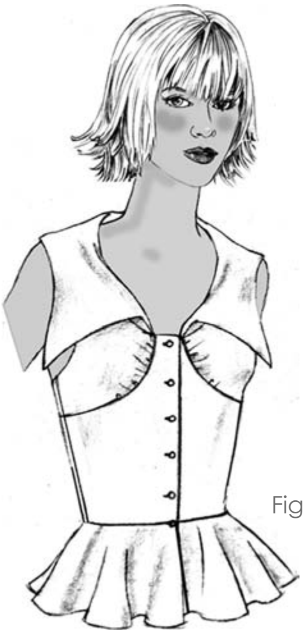
Figure 1



Collar for V-Neck

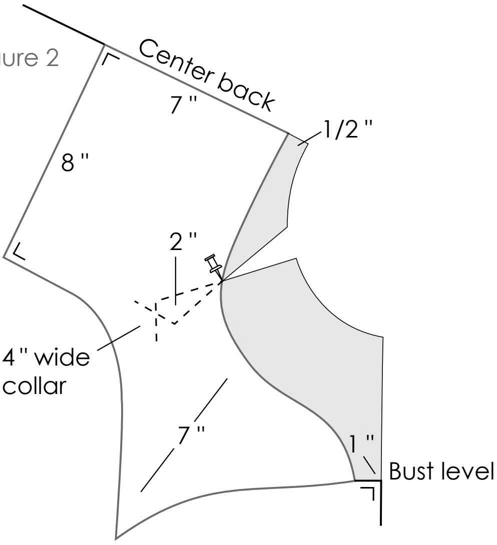
Figure 1

- Place front and back patterns together on the paper, matching shoulder at neck.
- Overlap shoulder tips 1/2 inch.
- Develop collar as illustrated.
- Cut collar from bodice.
- To complete bodice pattern, trace and trim A-B section.
- Trace collar and modify for undercollar. See Figure 2 in the Peter Pan with 1/2-Inch Stand (Partial Roll) section earlier in this chapter.



Design 2

Figure 2



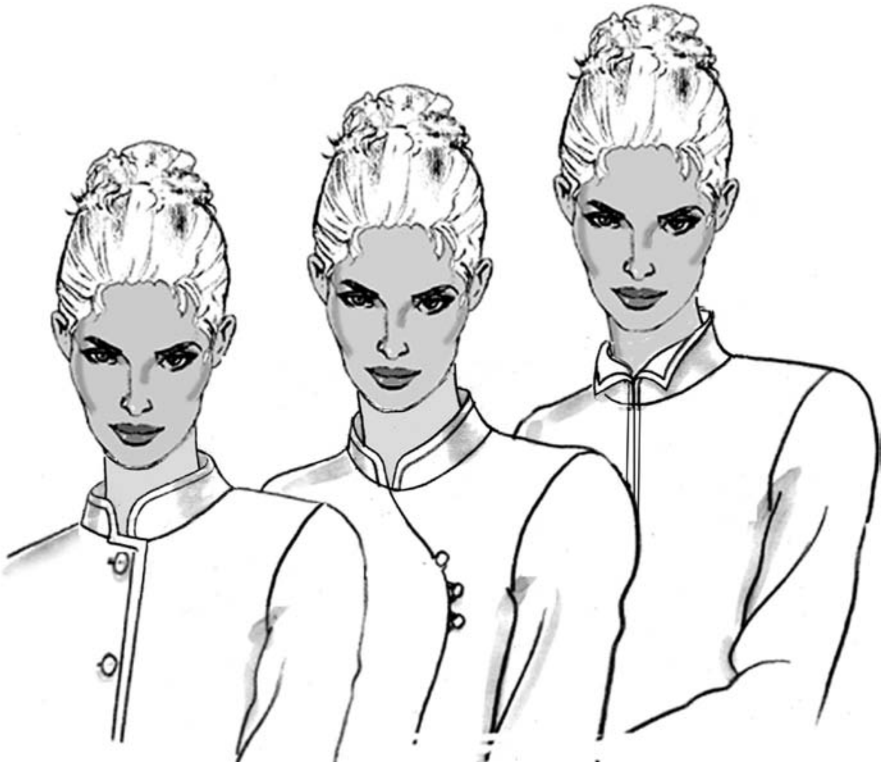
Collar for Stylized Neckline

Figure 2

- Before overlapping shoulder, plan neckline style on front and back bodice patterns using measurement given. Trim neckline (shaded area).
- Place front and back patterns on paper, matching shoulder at new neckline. Overlap shoulder tips 2 inches and trace neckline, center back, and center front. Remove pattern.
- Develop collar as illustrated.
- Cut collar from paper.
- To complete the pattern, use the front and back pattern with trimmed neckline.
- Trace the collar and modify for the undercollar. See Figure 2 in the Peter Pan with 1/2-Inch Stand (Partial Roll) section earlier in this chapter.

MANDARIN COLLAR

A Mandarin collar (also called military, Nehru, and Chinese collar) is a close-fitting, stand-up collar. It separates in front and varies in width from 1 1/4 to 1 1/2 inches on the average. It is the base for other collars, stands, and combination collar-and-stand variations. The collar may meet at center front, be overlapped and buttoned, or be extended to any point along the neckline. The Mandarin can be developed either close to or away from the neck. It can be curved, blunted, pointed, or extended for a partial folded-over collar effect. The neckline measurement is needed to draft these collars.



Design 1 Design 2 Design 3

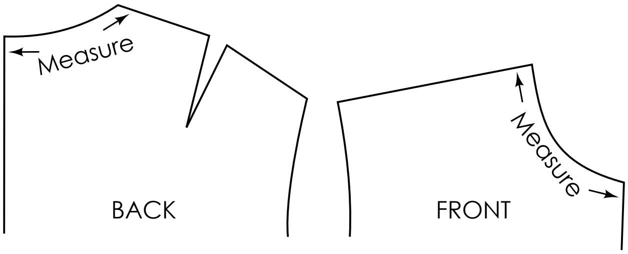
Basic Mandarin—Design 1

Measurements Needed

Center back neck: _________________

Center front neck: _________________

Total: _________________



Pattern Plot and Manipulation

Figure 1

- Square a line in the center of the paper equal to the following measurements:

  A–B = 1 1/2 inches (collar stand)

  B–C = Total back and front neck. Label C.

  B–D = Center back to shoulder measurement
- Mark for shoulder notch.

Figure 1

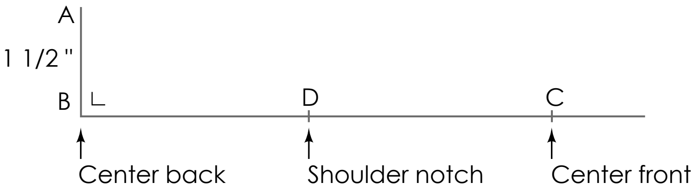


Figure 2

- Square up 1/2 inch from C. Mark and label E.
- Draw a curved line from E to D, completing the neckline edge of collar.
- Square a 1 1/2-inch line at right angles to E-D. Label F.
- Draw a line from A to F, parallel with B-D-E line.

Figure 2

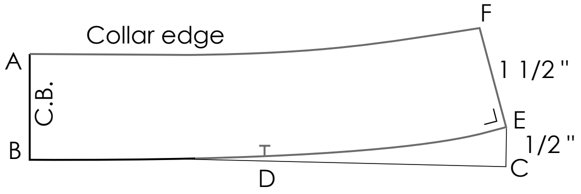
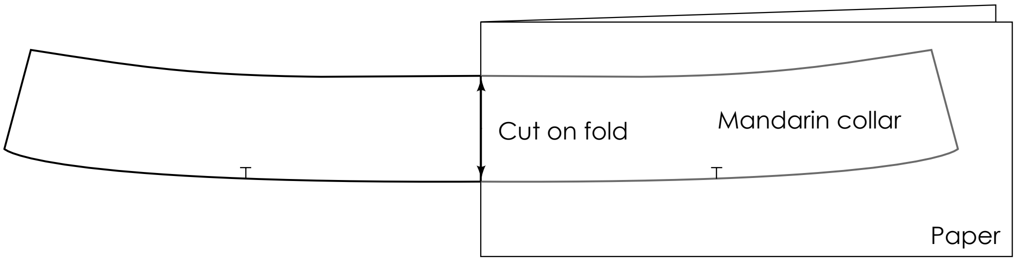

F
Collar edge
A
1 1/2"
C.B.
E
B
1/2"
D
C

Figure 3

- Cut collar from paper.
- To complete the pattern, trace on fold. Draw grainline and notch center back.
- Complete the pattern and trace to make a duplicate copy for the collar facing.

Figure 3


Cut on fold
Mandarin collar
Paper

Mandarin Collar Variations

The following examples are variations of the Mandarin foundation. Trace the pattern and modify as illustrated:

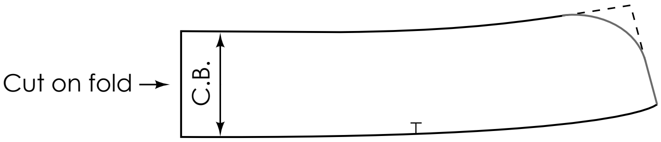
Curved Neckline (Design 1)

- Draw curves as shown.

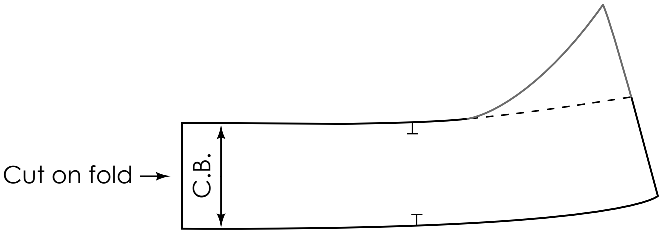
Wing Collar (Design 3)

- Extend line 1 1/4 inches at center front.
- Blend to collar band as shown.

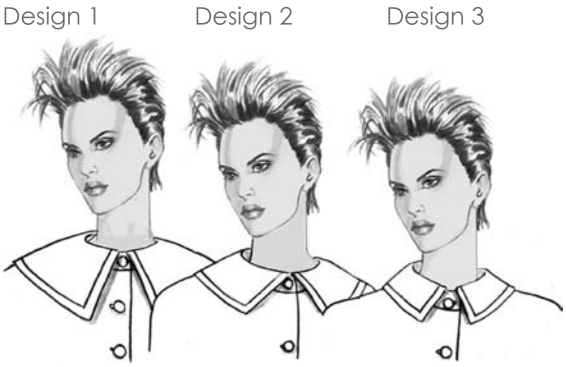
Design 2


Cut on fold
C.B.

Design 3


Cut on fold
C.B.

COLLAR WITH STAND


Design 1
Design 2
Design 3

Design Analysis

A collar is attached to the top edge of a Mandarin stand that has an extension for the button and buttonhole (also referred to as a shirt collar). To develop the Mandarin foundation, see the Mandarin collar section on the previous two pages. The pattern for Design 3 is illustrated.

Pattern Plot and Manipulation

Figure 1

- Trace Mandarin stand.
- Square out 1-inch extension from A and B. Connect.
- Draw curved line.
- Mark buttonhole placement as shown.

Figure 1

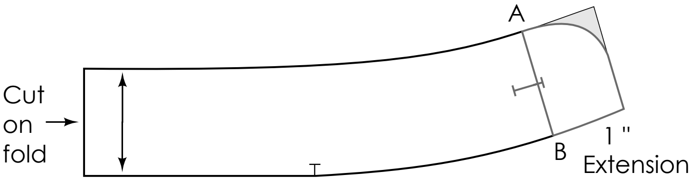

Cut on fold
A
B
1 " Extension

Figure 2

- Trace Mandarin stand. (The broken line indicates #1 part of the collar not needed.)
- Draw the collar, using measurements given.
- Notch the mid-point of the upper edge of the collar.

Figure 2

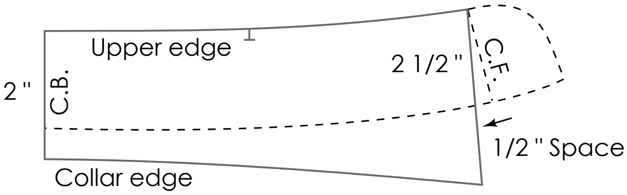

Upper edge
2 1/2 "
C.F.
2 "
C.B.
1/2 " Space
Collar edge

Figure 3

- Draw slash lines.
- Cut from paper.

Figure 3

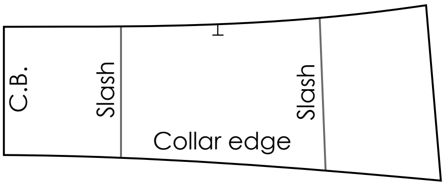
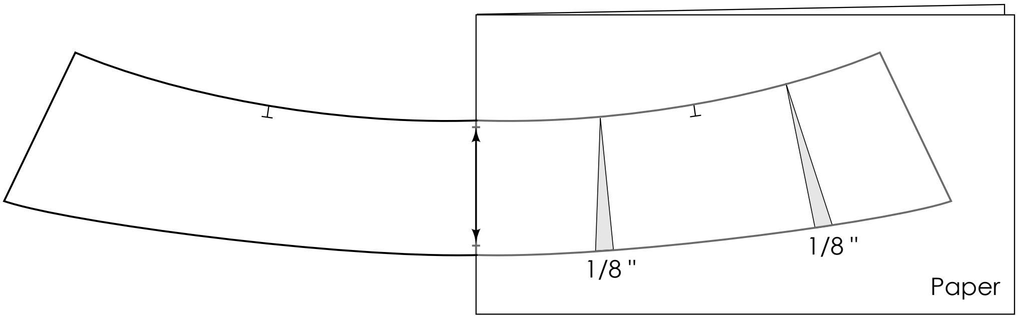

C.B.
Slash
Collar edge
Slash

Figure 4

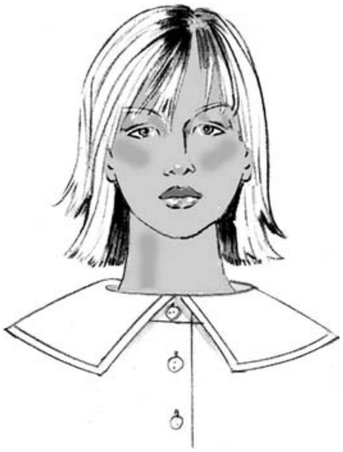
- Cut slash lines to, not through, the collar's upper edge.
- Place center back on fold. Spread sections 1/8 inch. Trace (spreading allows collar to lie on garment without riding upward at center back.)
- Cut from paper.

Figure 4



WIDE COLLAR AND STAND

Designs featuring wide collars with stand either follow the basic neckline, as illustrated, or stand away from the basic neckline. Both collar and stand are based on the nonconvertible collar principle.



Pattern Plot and Manipulation

Figure 1

- With the front and back necks touching, overlap shoulder tips 2 inches.
- Trace center back, center front, and neckline.
- Draw the neckline, ending 1/2 inch below center front.
- Draw the collar parallel with the neckline, ending 1 1/2 inches from the center front line. (The collar may be as wide as desired, and the front collar may be of any shape.)

Figure 1

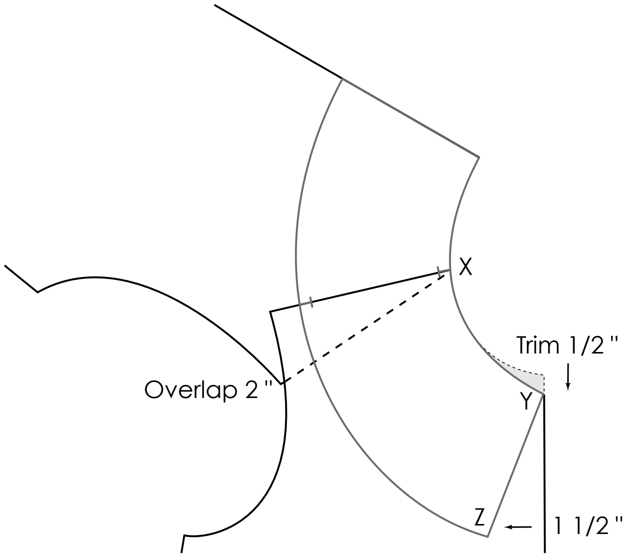


Figure 2

- Trace collar and fold.
- Cut from paper and retrace for undercollar. (See Figure 4 in the Peter Pan with 1-Inch Stand (Full Roll) section earlier in this chapter for guidance.)

Figure 2

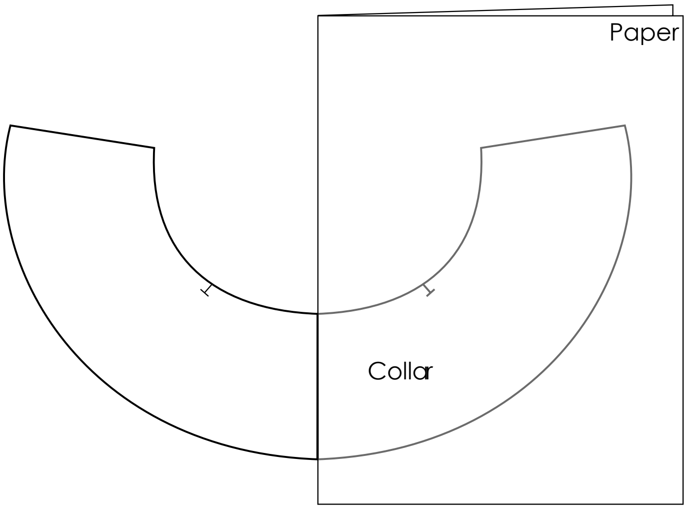
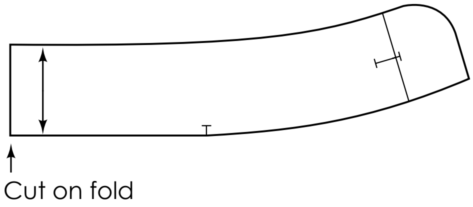


Figure 3

- To draft the stand, use the measurement of the neckline edge of the new collar. See the previous two pages for guidance.
- True collar to stand (allow 1/8 inch for ease).

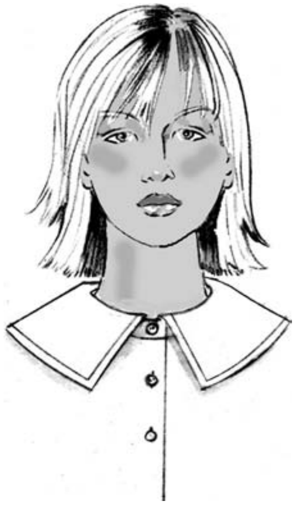
Figure 3



COLLAR AND STAND AWAY FROM THE BASIC NECKLINE

Design Analysis

The distance from the basic neckline and the style of the collar may be varied to create different versions of this design.



Pattern Plot and Manipulation

Figure 1

- Draw the neckline on the front and back pattern.
- Trace the back pattern. Transfer the new neckline as illustrated.
- Place the front pattern on the back pattern, with new necklines touching (mark X).
- Overlap shoulder tips 2 inches.
- Trace the front pattern and trace the new neckline.
- Remove the pattern and pencil in the new neckline.

Figure 1

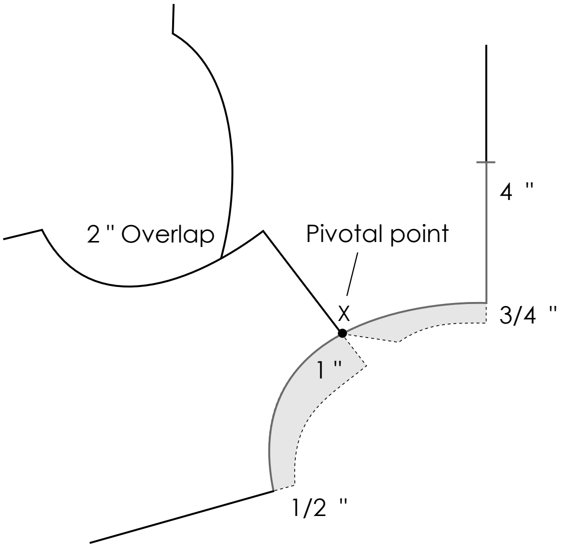


Figure 2

- Lower the neckline 1 inch at center front.
- Draw the collar parallel with the new neckline, ending approximately 2 inches from center front. (Collar can be as wide as desired.)

Figure 2

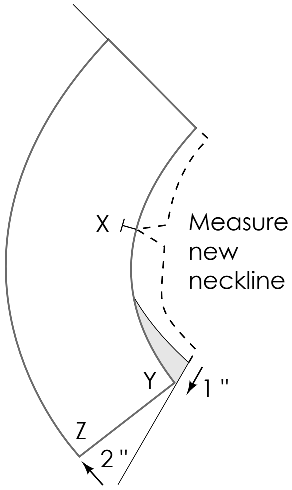


Figure 3

- Trace collar on fold.
- Cut the collar from paper and retrace for the undercollar. (See Figure 4 in the Peter Pan with 1-Inch Stand (Full Roll) section earlier in this chapter for guidance.)

Figure 3

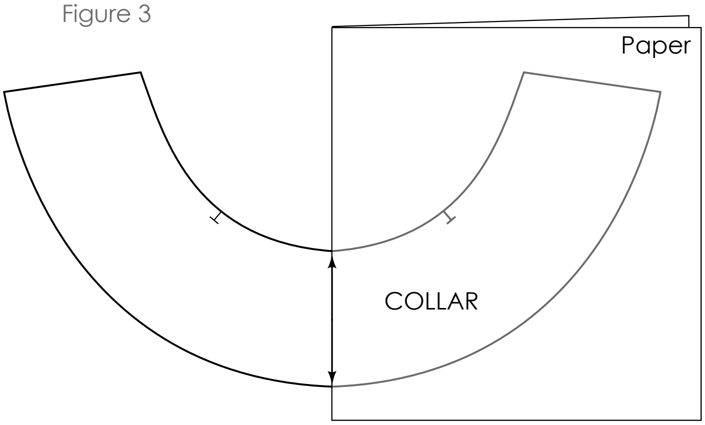
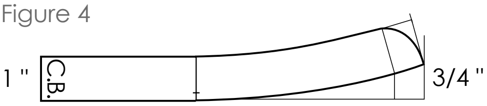


Figure 4

- For guidance in developing the collar stand, see the Sailor with Inset and Collars with Deep, Open Necklines sections earlier in this chapter.

Figure 4



ALL-IN-ONE COLLAR AND STAND

Figure 1

- Trace Mandarin collar with extension. (See Figure 1 in the Collar with Stand section three pages back.)
- Extend a line up from center front and center back equal to the collar width plus 1/4 inch.
- Draw a line parallel with the bottom edge of the Mandarin. Extend 3/4 inch beyond center front line to form point of the collar. Connect with center front of stand.
- Draw slash lines.

Figure 1

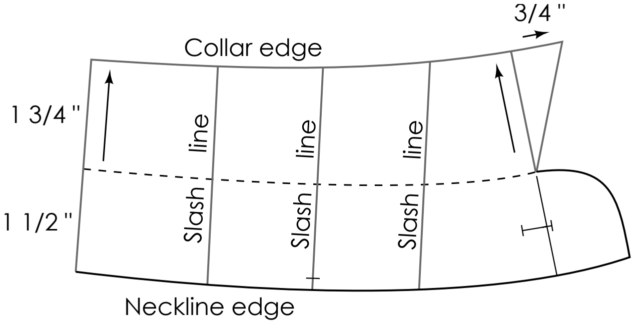
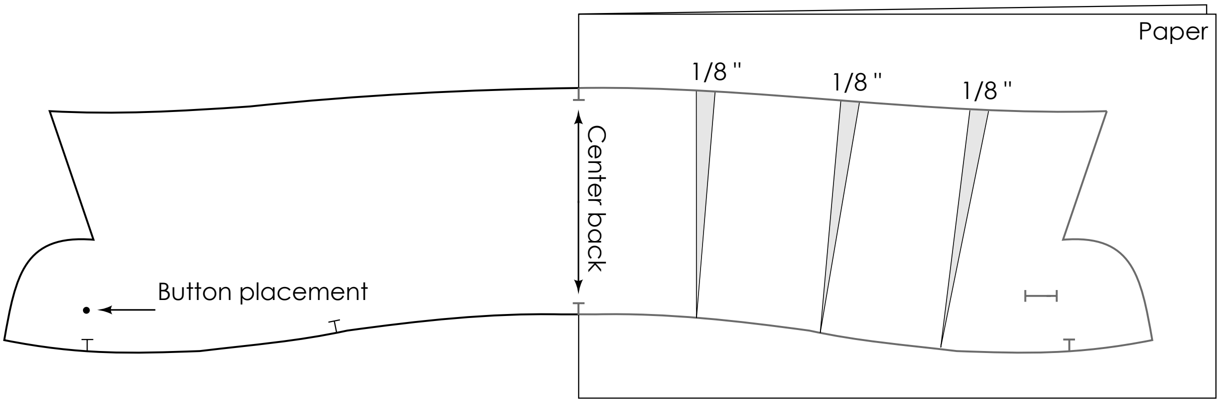

3/4 "
Collar edge
1 3/4 "
1 1/2 "
Slash line
Slash line
Slash line
Neckline edge

Figure 2

- Cut slash lines to, not through, neckline edge.
- Place center back on the fold. Spread 1/8 inch to increase collar's edge (prevents collar from riding upward at center back).
- Trace. Blend the collar edge.

Figure 2

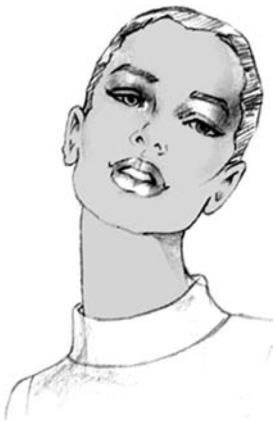

Paper
1/8 "
1/8 "
1/8 "
Center back
Button placement

ROLL COLLARS

Bias-fold collar bands can be developed for any neckline (basic or for a wider neckline). The finished length, however, should be slightly shorter than the area covered to compensate for the stretch of the bias fabric. The collar width may be planned for either a folded bias band or a band folded back on itself. Cut the band equal to the front and back neck measurement. Stretch the collarband slightly when stitching to the neck of the garment. Trim the overhang and reduce the pattern by the same amount, or use the formula given in the instructions that follow.

Turtle Neck

Design 1



Pattern Plot and Development

Figures 1 and 2 Neckline Modification:

- Trace pattern and adjust neck as illustrated.
- Blend new neckline.

Neckband: (shortened to offset stretch)

- Measure A–B, less 1/4 inch (front neck). Record.
- Measure B–C, less 1/4 inch (back neck). Record.

Figure 1

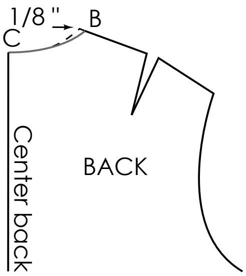


Figure 2

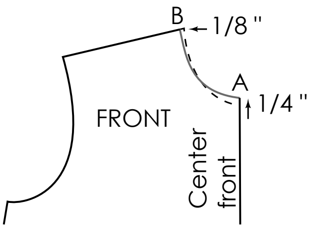


Figure 3 Turtle Band

- Fold paper.
- Square a line from the fold to equal front and back measurement (A, B, C). Mark B for notch placement at shoulder.
- Draw parallel lines, spaced 3 inches apart for single fold (1 1/2 inches finished width), or 6 1/2 inches apart for double fold (3 1/4 inches finished width indicated by broken line).
- Connect ends.
- Draw the bias grainline and complete the pattern for test fit.

Figure 3

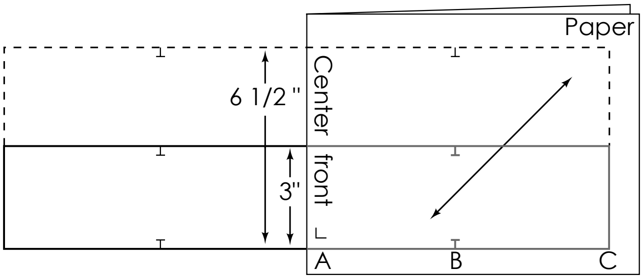


Figure 4

- The center back can be closed with loops and buttons.

Figure 4

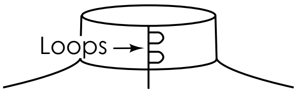
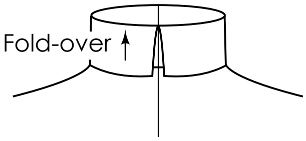


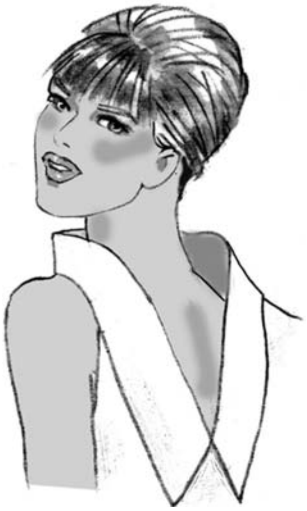
Figure 5

- The center back can also be left open when folded back onto itself.

Figure 5



Roll Collar with Cutaway Neck



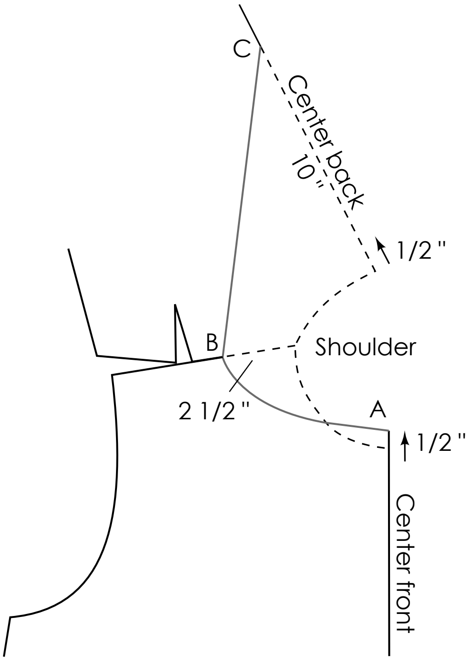
Design Analysis: Design 2

In Design 2 a bias band encircles a cutaway neckline that drops deep at center back.

Figure 1

- Place shoulder lines together, matching at neck, and draw the necklines. Cut from the paper.
- Measure the total neckline from A to B to C.
- The front and back bodice patterns are complete. Add seams, grain, and pattern information.

Figure 1

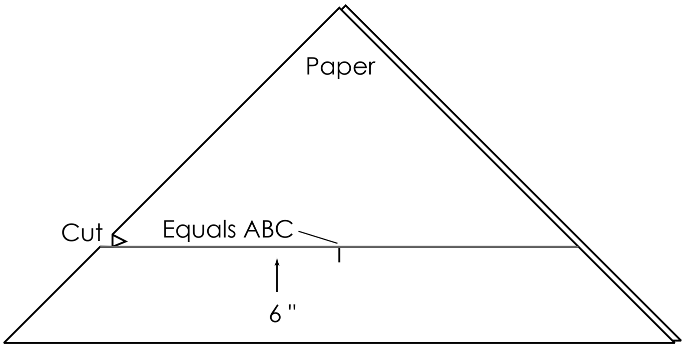


Paper Preparation

Figure 2

- Fold the paper on a 45-degree angle.
- Draw a parallel line 6 inches up from fold using the A, B, C measurement (includes seam allowance and fold-over).
- Cut paper to this measurement (center front).

Figure 2



Figures 3a, b

- Fold and trace the other side of the roll collar (Figure 3a).
- Notch at center front. Draw the grainline at a 45-degree angle from the fold. This will place the roll collar on a true bias (Figure 3b).

Figure 3a

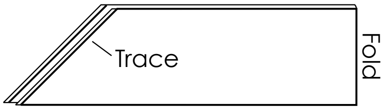
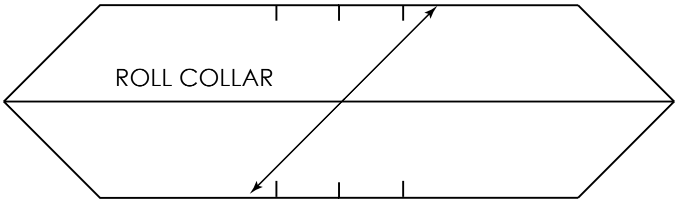
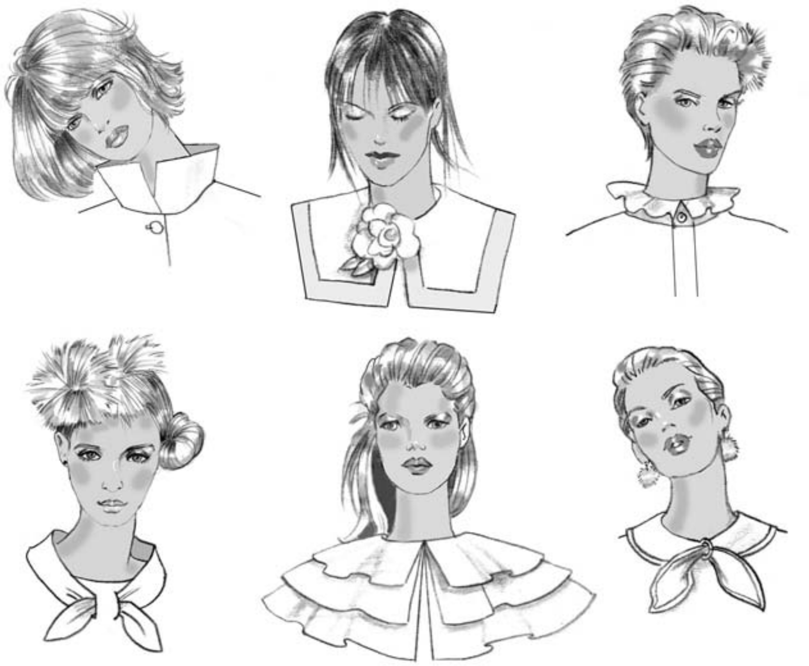


Figure 3b



Stitching guide: Pin or baste the bias roll collar to the neckline pulling slightly to remove stretch. Overhang at the center back of the collar is to be trimmed, allowing a 1/2-inch seam. Trim the excess from the collar pattern. Mark shoulder notches and at center front.

COLLAR DESIGN VARIATIONS



SELF-EVALUATION TEST

Match column 1 with the correct answer from column 2
Review the chapter. Check your answers at the end of the chapter.

Column 1	Column 2
1. Collar's edge	___ Base for collar and stand
2. Neckline collar edge	___ Reduce collar's edge
3. Roll line	___ Needed to draft collars
4. Collar stand	___ Collar made narrow
5. Undercollar	___ Sewn to neck of garment
6. Scalloped collar's edge	___ Follows curve of the neckline
7. Loose collar edge	___ Flat roll
8. Collar's edge rolls upward	___ Increase collar's edge
9. Peter Pan collar	___ Non-convertible
10. Shoulder tip overlap 1/8 inch	___ Style of the collar
11. Neckline measurement	___ Collar's neckline edge is modified
12. Mandarin collar	___ Fold-over at collar's stand
13. Convertible collar	___ Does not follow neckline edge
14. Nonconvertible collar	___ Height of back collar

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

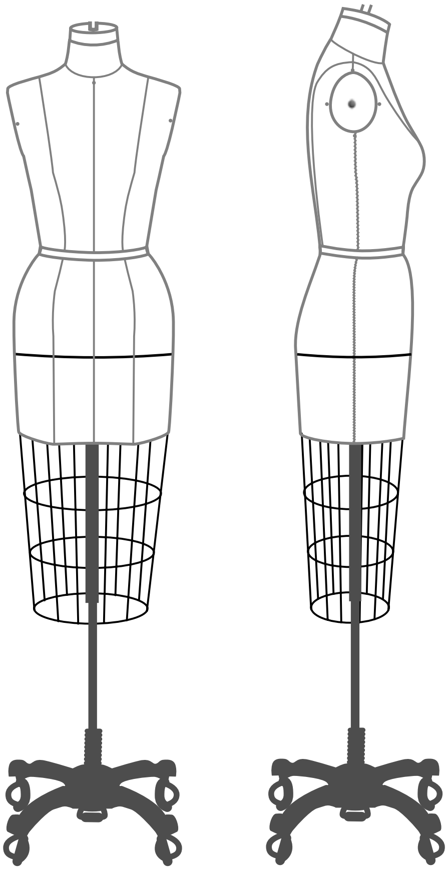
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

*Measuring the Arm

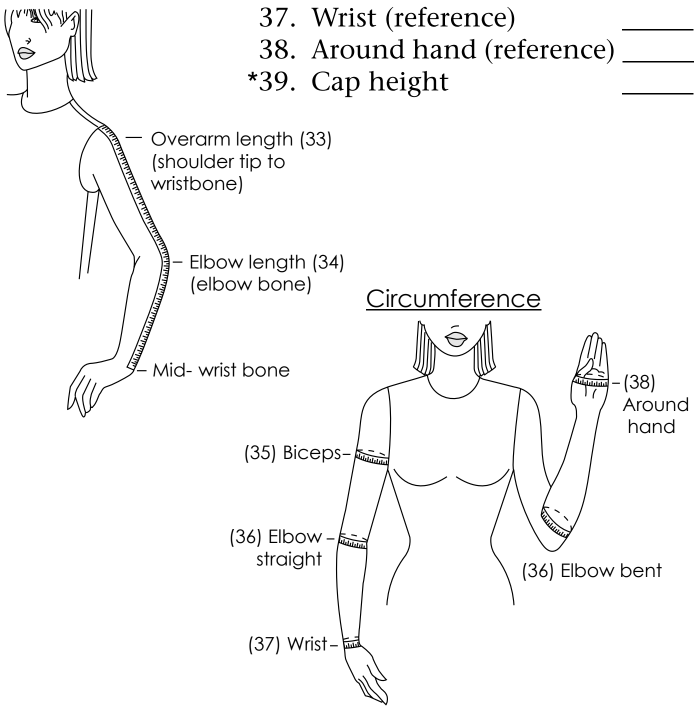
Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____


Length
Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone
Circumference
(35) Biceps
(36) Elbow straight
(37) Wrist
(38) Around hand
(36) Elbow bent

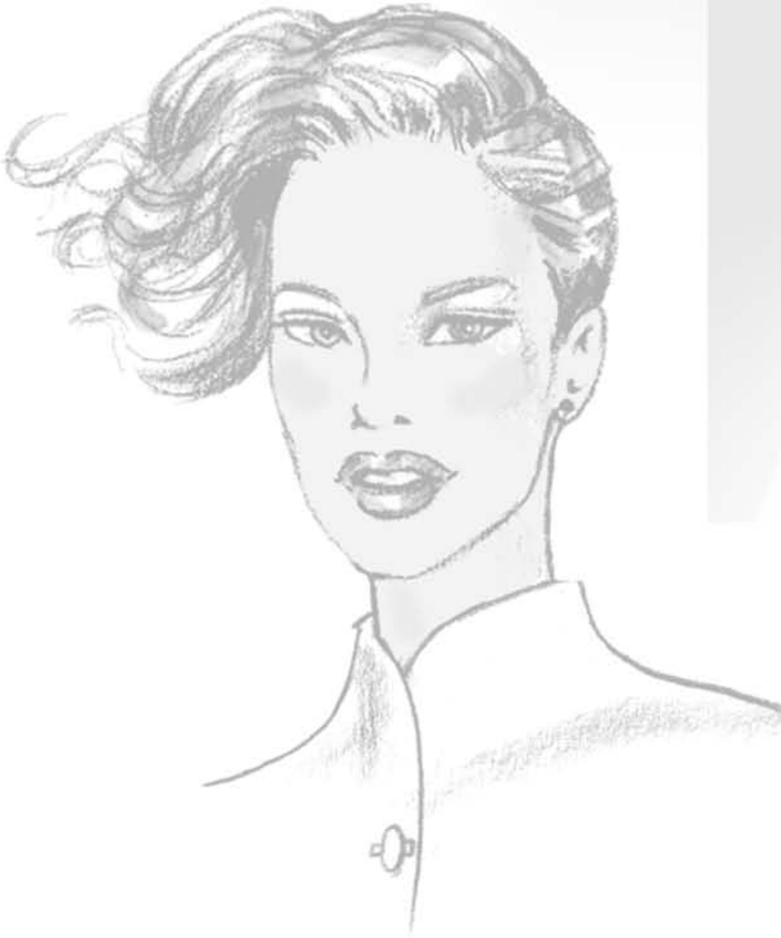
ANSWERS TO SELF-EVALUATION TESTS

Matching test: 12, 7, 11, 5, 2, 14, 10, 8, 9, 1, 6, 3, 13, 4

This page intentionally left blank

Built-Up Necklines

BUILT-UP NECKLINES
  Stovepipe Neckline
  Built-Up Bateau Neckline
INSET BANDS
  Rounded Inset Band
  Inset Band Variations



From Chapter 11 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

BUILT-UP NECKLINES

Built-up necklines extend above the base of the neck and must accommodate the position of the neck as it juts forward (Figure 1). There are two basic types of built-up necklines: all-in-one with the bodice (Figure 2) and set-in bands (Figure 3). Either type can be developed from any point along the shoulder and to any height. Added room is provided along the outer edge of a built-up neckline. This allows the neckline to rise up and away from the neck and shoulder of the garment to prevent strain from the neck's forward position. The development of this type of neckline is an application of Principle #1, Dart Manipulation (when transferring dart excess to the neckline) or Principle #2, Added Fullness (when adding to the pattern's outline). Because of the special features of this type of neckline, facings are included in the instructions.

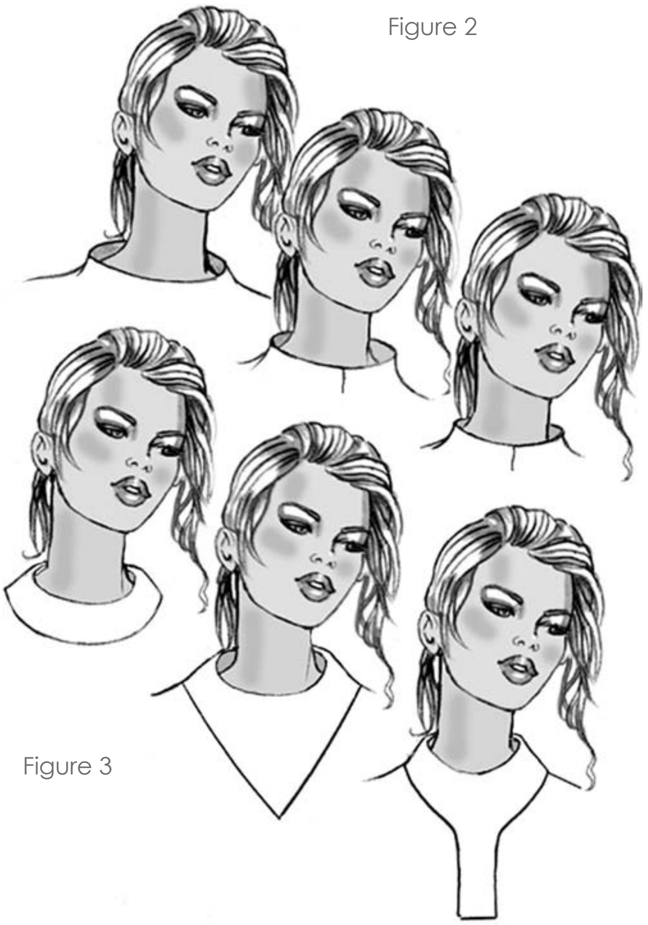


Figure 2

Figure 3

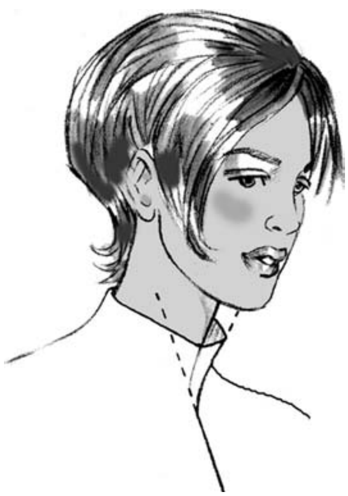
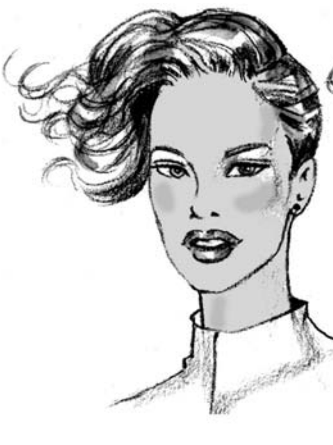


Figure 1

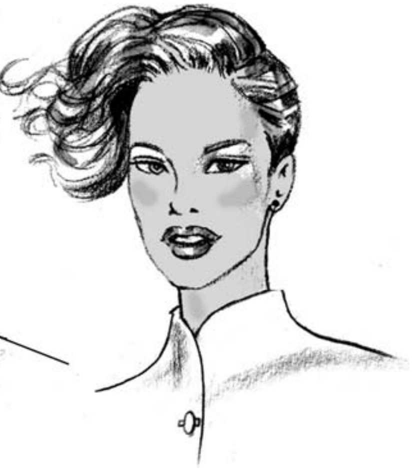
Stovepipe Neckline

Design Analysis: Designs 1 and 2

The neckline of Design 1 extends above the natural neckline in front and back, with seams at center front and center back. Design 2 is a practice problem.



Design 1



Design 2

Pattern Plot and Manipulation

Figure 1 Front

- Trace and cut front bodice pattern.
- Mark A 2 inches down from center front.
- Mark B 1/2 inch in from neck at shoulder.
- Draw curved slash line from A to B.

Figure 1

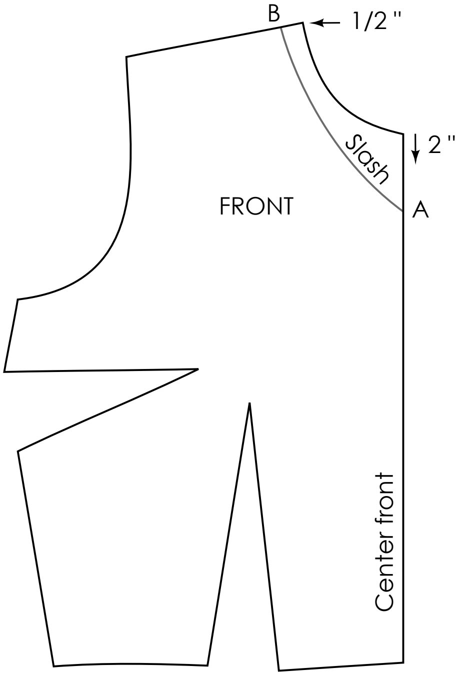
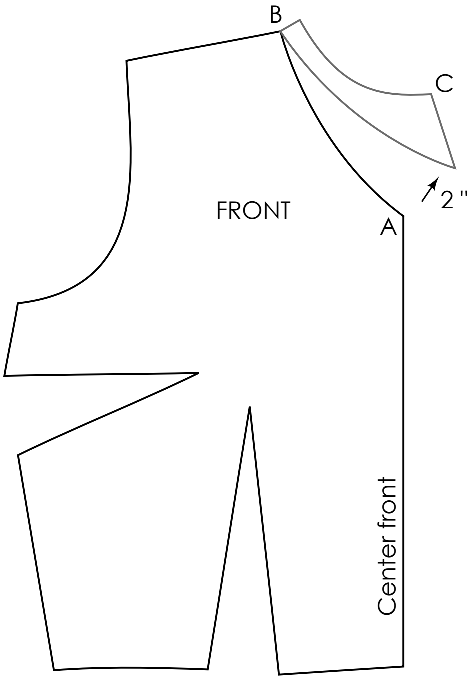

B
1/2 "
2 "
Slash
FRONT
A
Center front

Figure 2

- Cut slash line from A to, not through, point B.
- Place on paper and spread 2 inches. Secure.
- Trace and label center front neck C.

Figure 2


B
C
2 "
FRONT
A
Center front

Figures 3a, b

- Continue line 1 1/2 inches up from point B and square a short line.
- Draw a curved line to C and to A.
- Blend at A and B. Notch (Figure 3b).
- Cut from paper.

Figure 4 Facings

- Place center front of pattern on fold of the paper.
- Trace neckline from center front to 1 inch down from B on shoulder.
- Remove pattern. Draw the bottom edge parallel with the neckline. Notch center front neck.

Figure 3a

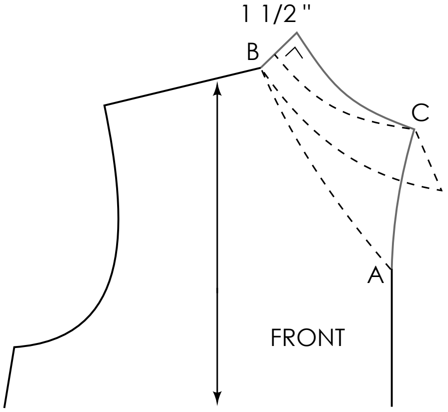

1 1/2 "
B
C
A
FRONT

Figure 3b

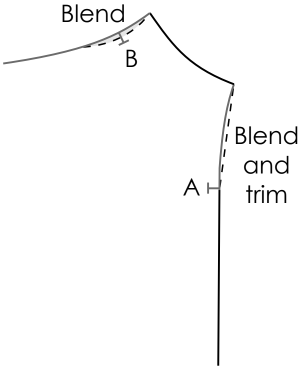

Blend
B
Blend
and
trim
A

Figure 4

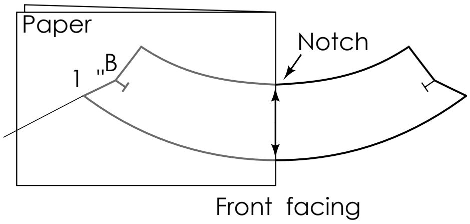

Paper
1 "
B
Notch
Front facing

Figure 5 Back

- Trace back. Mark A at neck/shoulder and draw a guideline parallel with center back.
- Extend center back 1 inch. Label B and square a short line.
- Mark C 1/2 inch from A.
- From C draw a 1 1/2-inch line to the guideline. Label it D.
- Draw a curved line parallel with the neckline from D to B and from D to shoulderline.
- Add a 1-inch extension at center back for closure and mark notches.

Figure 6 Facing

- Trace the back pattern 1 inch below point C, starting at original *center back*. Remove pattern. Draw facing's edge parallel with neckline edge. Notch at point C and center back.
- Draw grainline and complete pattern for test fit.

Figure 5

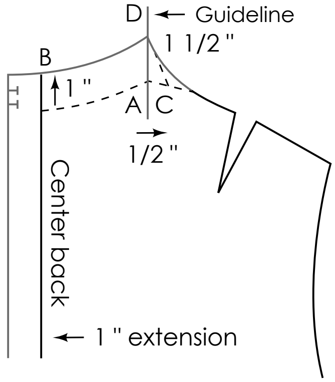
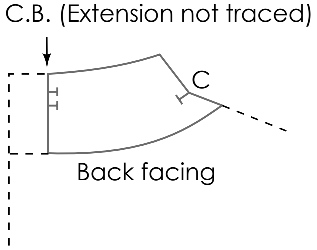


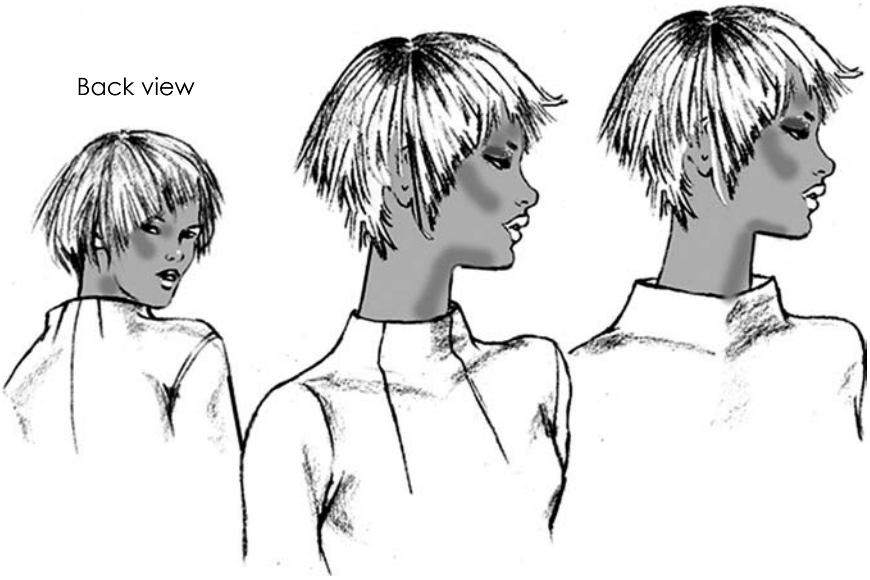
Figure 6



Built-Up Bateau Neckline

Design Analysis: Designs 1 and 2

The neckline of Design 1 extends upward from mid-shoulder and center front of neck. Excess from the dart is transferred to the neckline to allow room for the neck, which juts forward. Design 2 is included for practice. Design other variations for additional practice.



Design 2

Design 1

Pattern Plot and Manipulation

Figure 1 Front

- Trace pattern, transferring 1/2 inch of the dart excess to mid-neck.
- Extend center front neck 3/4 inch and square a short line. Label A and mid-shoulder B.
- Square a line 1 1/2 inches up from B, ending 3/4 inch out from shoulder. Label C.

Figure 1

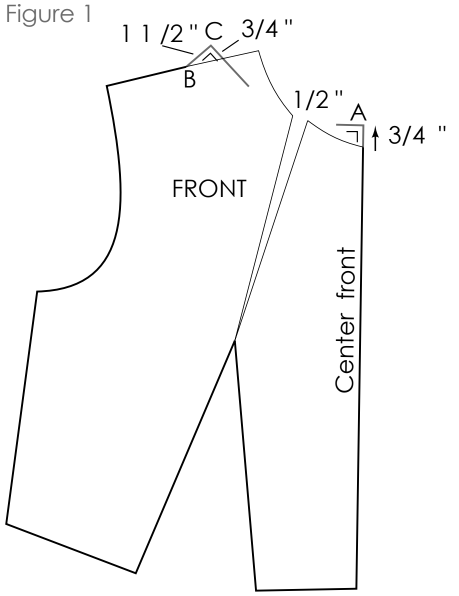

1 1 /2 "
C
3/4 "
B
1/2 "
A
3/4 "
FRONT
Center front

Figure 2

- Draw neckline, blending curved line with square lines A and C. Mark notch at point B. (Broken line indicates original pattern.)
- Cut pattern from paper.

Figure 2

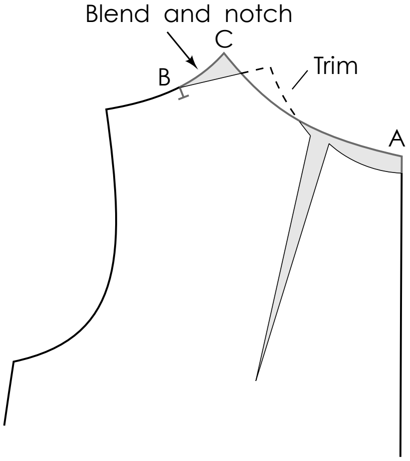

Blend and notch
C
B
Trim
A

Figure 3 Facing

- Trace neck area on fold, ending 1 inch from B. Remove pattern. Draw bottom edge parallel with neckline.

Figure 3

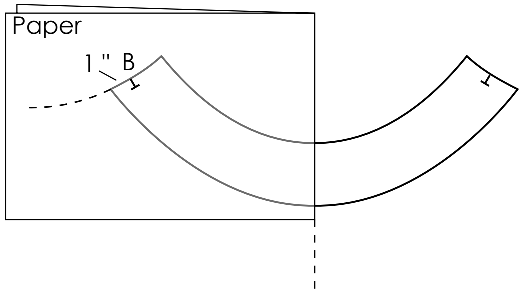


Figure 4 Back

- Trace back pattern, transferring all or half of the dart excess to the neck. Remaining excess will be eased in along the shoulder or use multidispersion back pattern.
- Draw a 1-inch extension. Mark notches.

Figure 4

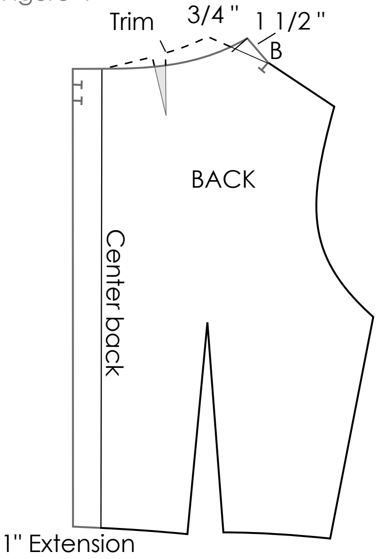
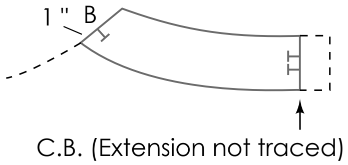

Trim
3/4 "
1 1/2 "
B
BACK
Center back
1" Extension

Figure 5

- Draw facing (width same as front), ending at center back.
- Draw grainlines and complete patterns for test fit.

Figure 5


1 " B
C.B. (Extension not traced)

INSET BANDS

An inset band is developed from part of the front and back bodice and located anywhere along the shoulder or neckline. The band is modified so that it will not lie flat on the model's neck. The following instructions apply to any type of inset neckline. The shoulder dart can be shifted to another location along the shoulderline or transferred to the neckline to become part of the band, or you can use multidispersion for the back pattern.

Rounded Inset Band

Design Analysis: Design 1

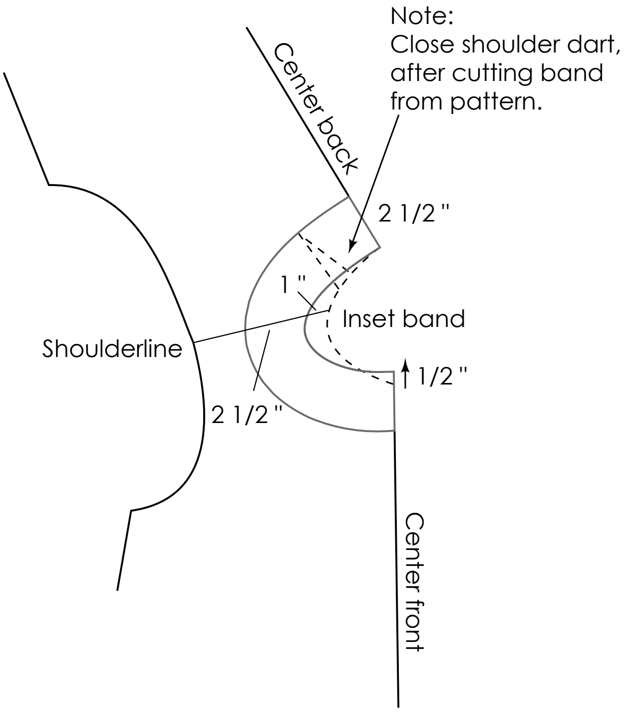
The inset band is formed around the garment, with the upper edge away from the neck and mid-shoulder.

Pattern Plot and Manipulation

Figure 1

- Trace back, transferring shoulder dart to the neck (dart is eventually closed).
- Place the front on back shoulderline. Draw the neckline and band, using illustration as a guide. (Broken lines indicate original pattern.)
- Cut neckband from front and back patterns, discarding unneeded section. The lower part of the front and back bodice completes the design.

Figure 1


Note:
Close shoulder dart, after cutting band from pattern.
Center back
2 1/2"
1"
Inset band
Shoulderline
1/2"
2 1/2"
Center front

Design 1

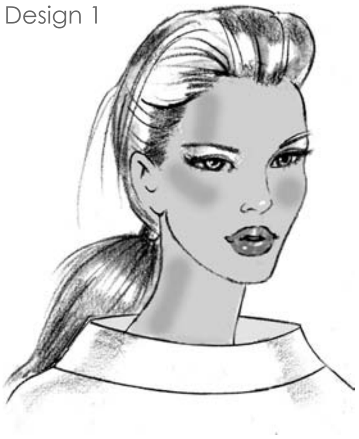
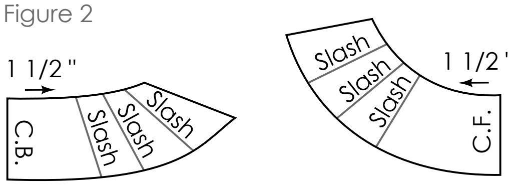


Figure 2

- Close neck dart.
- Draw three slash lines on each inset section starting 1 1/2 to 2 inches from center front and center back.

Figure 2


1 1/2"
C.B.
Slash
Slash
Slash
Slash
Slash
Slash
1 1/2"
C.F.

Figures 3, 4

- Cut slash lines to, not through, neckline edge.
- Place patterns on paper with center front on fold.
- Spread each section 1/4 inch and add 1/2 inch at the shoulder to zero at the neckline edge.
- Add a 1-inch extension at center back for closure.
- Draw grainlines, add seams, and complete for test fit.

Figure 3

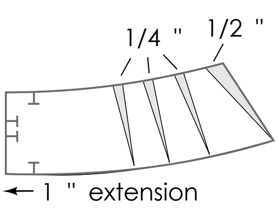
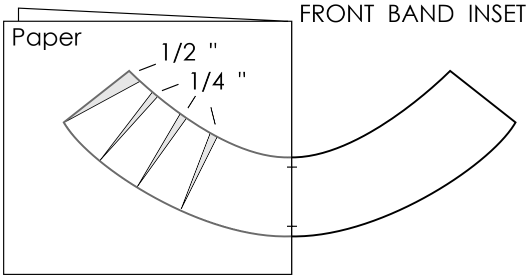

BACK BAND INSET
1/4"
1/2"
1" extension

Figure 4


FRONT BAND INSET
Paper
1/2"
1/4"

Inset Band Variations

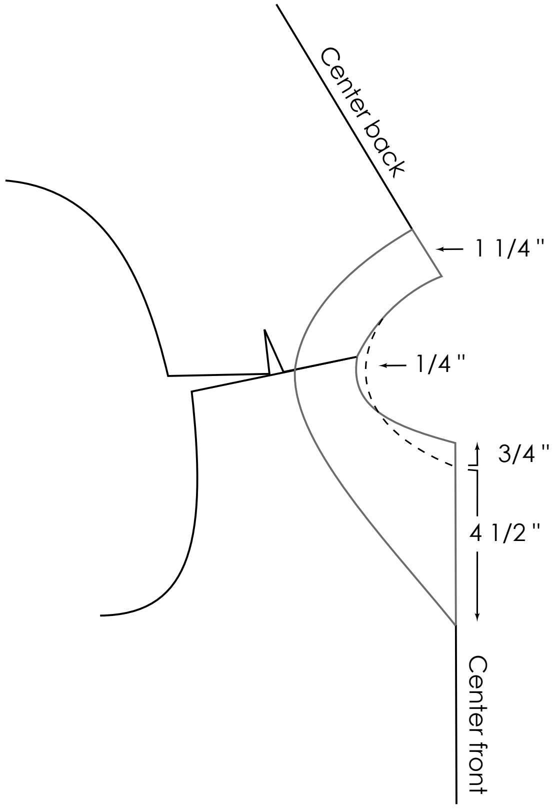
Design Analysis: Designs 2 and 3

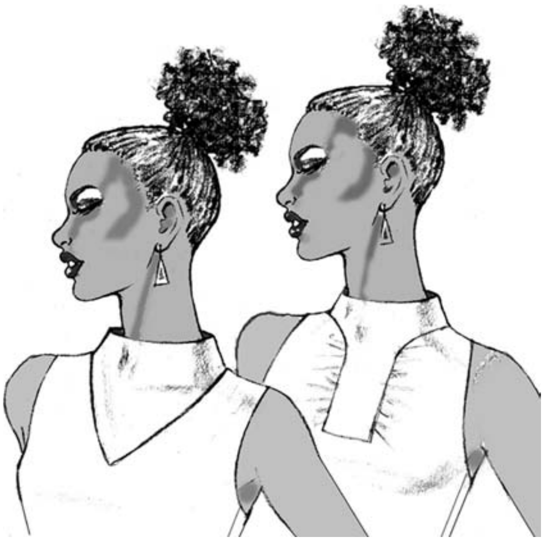
Design 2 has an inset band that comes to a point at center front and curves around to center back. Design 3 is given as a practice problem.

Pattern Plot and Manipulation

- Use the instructions for Design 1 and the illustrations that follow as guides for developing the patterns.

Figure 1 Plotted Patterns


Center back
1 1/4"
1/4"
3/4"
4 1/2"
Center front



Design 2

Design 3

Figure 2 Inset Bands

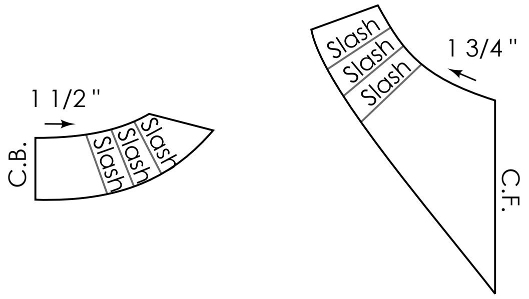
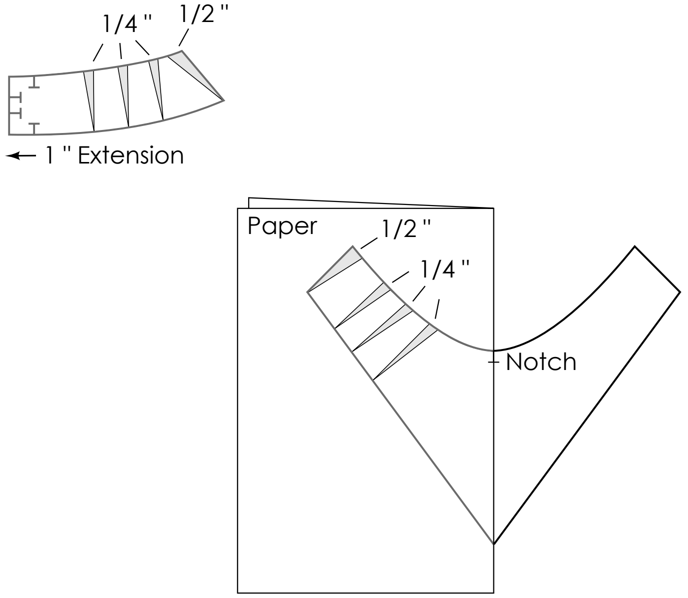

1 1/2"
C.B.
Slash
Slash
Slash
Slash
Slash
Slash
1 3/4"
C.F.

Figure 3

- Slash and spread back and front bands.
- Trace front on fold.
- Draw grainlines; add seams and notches. Complete pattern for test fit

Figure 3


1/4"
1/2"
1" Extension
Paper
1/2"
1/4"
Notch

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

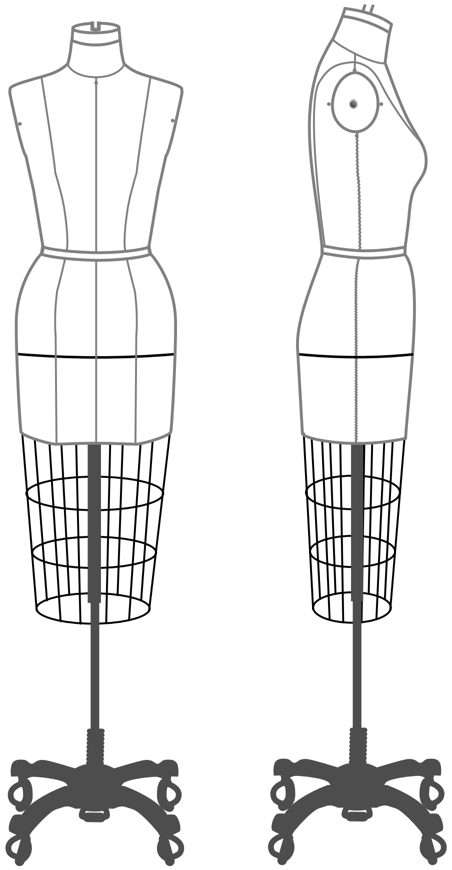
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____
2. Waist: _____
3. Abdomen: _____
4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
   B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
    Front = 1" (2 darts 1/2 to 5/8")
    Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

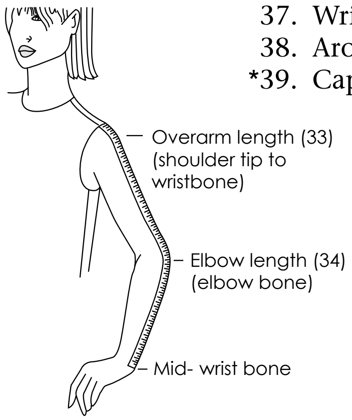
Personal Figure Variations

A. Head height relationship:
   Bust _____ Waist _____
   Crotch _____ Knee _____
B. Bust/back/chest relationship:
   Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
   Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
   Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
   Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
   Front: _____ Back: _____
M. Bust/waist = _____
   Waist/hip = _____
   Bust/hip = _____
N. Other variations: _____

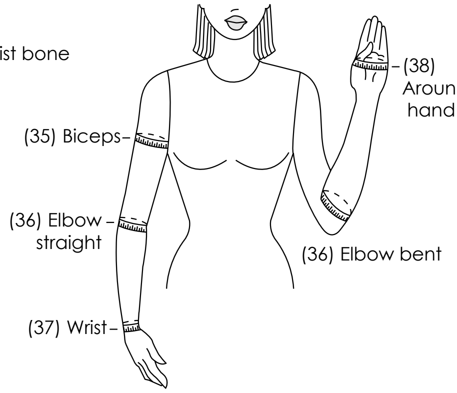
Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____

Length


Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone

Circumference



*Measuring the Arm

Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

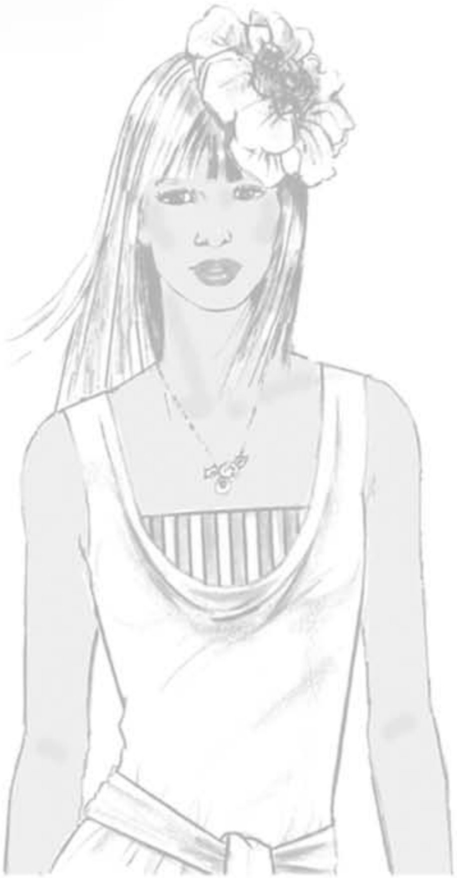
This page intentionally left blank

Cowls

From Chapter 12 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

Cowls

COWLS
    Types of Cowls
    Nature of the Bias Cut
    Twisting
    Making Patterns for Bias-Cut Cowls
    Finding True Bias
    Fitting the Cowl Drape
    Correcting the Pattern
    High Relaxed Cowl
    Mid-Depth Cowl
    Low Cowl
    Deep Cowl
    Strapless Top
BACK COWLS
    High-Back Cowl
    Mid-Back Cowl
    Low-Back Cowl
ONE-PIECE ARMHOLE COWLS
PLEATED COWLS
    Pleated Shoulder Cowl
EXAGGERATED COWLS
    High Exaggerated Cowl
INSET COWLS
    V-Inset Cowl
SELF-EVALUATION TEST



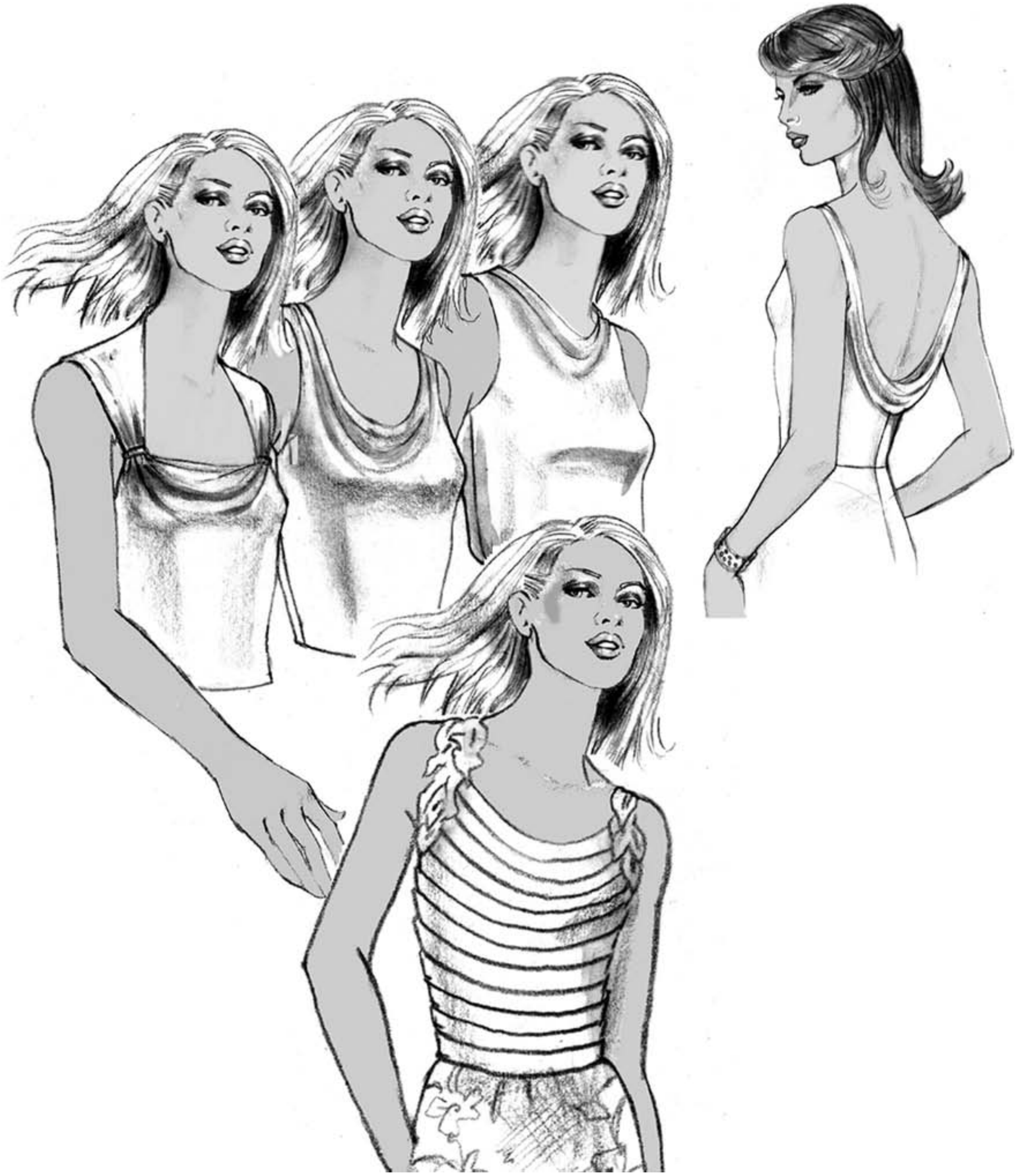
COWLS

Cowl folds are created by allowing fabric to fall to desired depths from secured ends of a bias triangle. Cowls drape best on true bias and when cut in soft, loosely woven fabrics—crepe, silk, gauze, rayon, satin, chiffon, and certain knits. The *bodice* cowl depends on excess taken from the basic dart—the lower the depth of the cowl, the greater the amount of excess needed—an application of Dart Manipulation.

Types of Cowls

Cowls can be designed with or without pleats and/or gathers and with few or many folds. They fall at varying depths, creating a soft look to any garment. Cowls fall from the shoulder at necklines, at armholes, or from the waist of dresses, gowns, blouses, pants, jackets, and coats. Cowls can also be designed to fall from the cap area of the sleeve. Cowls can be in-one with the garment or be set-in to save fabric. With the help of a broach or clip, the cowl can be pulled in any direction to create interesting effects.

French darts rather than waist darts may be preferred.

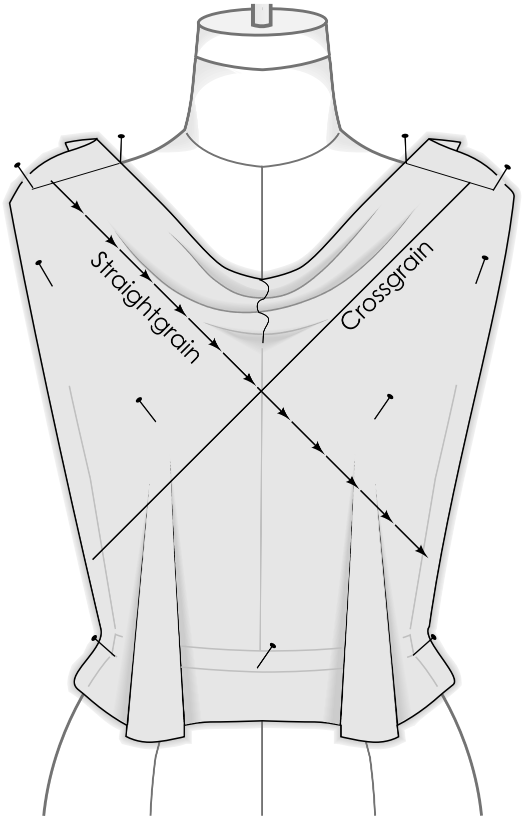


Nature of the Bias Cut

Figure 1

The lengthwise grain and cross-grain run in opposite directions as the cowl hangs from the shoulder (or from any part of a garment). The fold of the cowl follows more closely to the lengthwise grain on one side, and on the other side the fold follows more closely to the cross-grain. The lengthwise grain, which is twisted more firmly than the cross-grain, may cause the fold of the cowls to roll differently and often is the reason for twisting.

Figure 1

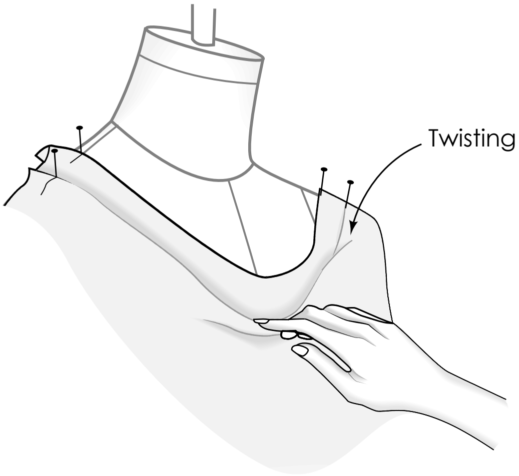


Twisting

Figure 2

Place a finger at the center of each fold of the cowl. Press downward gently. If the fold of the cowl(s) twists, redrape the cowl on the side of the twist until the fold falls smoothly. Correct the pattern (the sides may differ).

Figure 2



Making Patterns for Bias-Cut Cowls

Basic patterns are generally developed for garments cut on the straightgrain of woven fabrics, not for those cut on the bias. The cowl patterns require adjustments if the garment is to fit. The cowl is cut on perfect bias and draped on the form for a first fitting to determine the stretch of the bias. The amount that the cowl bodice stretches when fit on the form is marked and trimmed or added to the original pattern. The adjustments cause the pattern to be reduced in size to the amount that it will stretch. When recut, it should fit in the final test.

Finding True Bias

Figure 3

To find true bias, fold the cross-grain to the lengthwise grain—or parallel to it. Smooth the fabric and pin along the edges to hold. Mark the fold line with chalk or thread line loosely to indicate true bias. The cowl pattern should be traced on marking paper first and then pinned to the fold of the fabric. Place tissue underneath the fabric to prevent slippage when cutting.

Figure 3

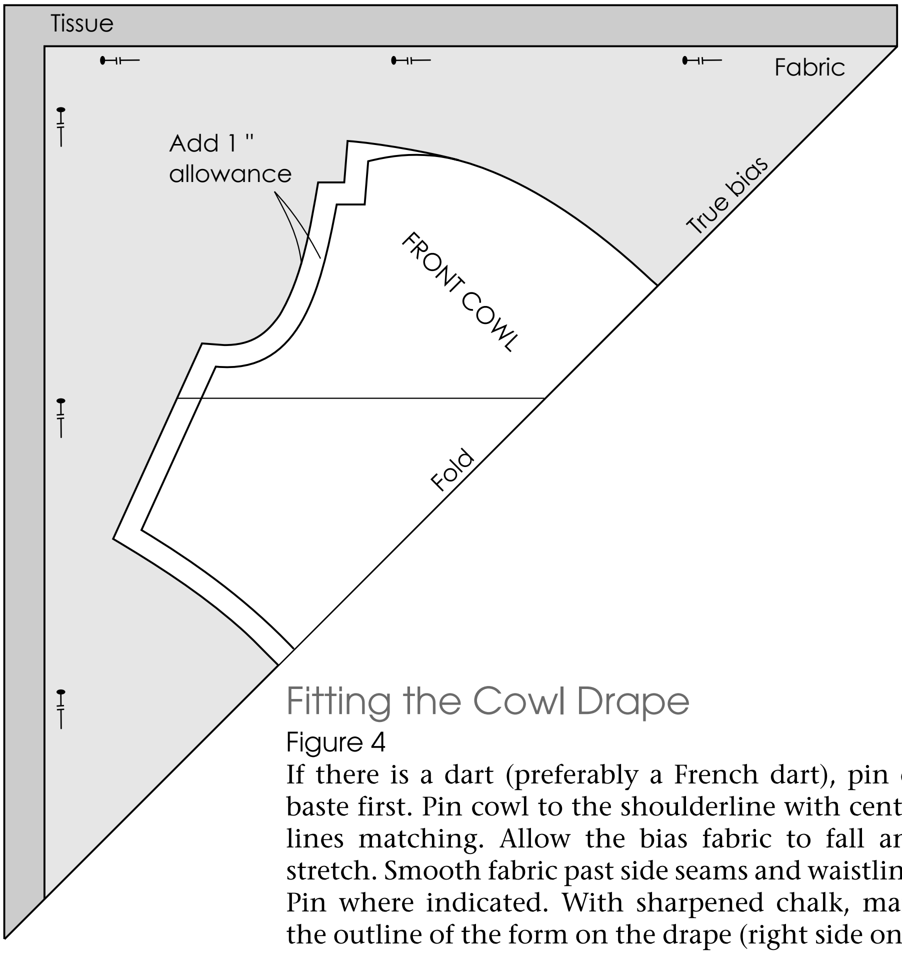
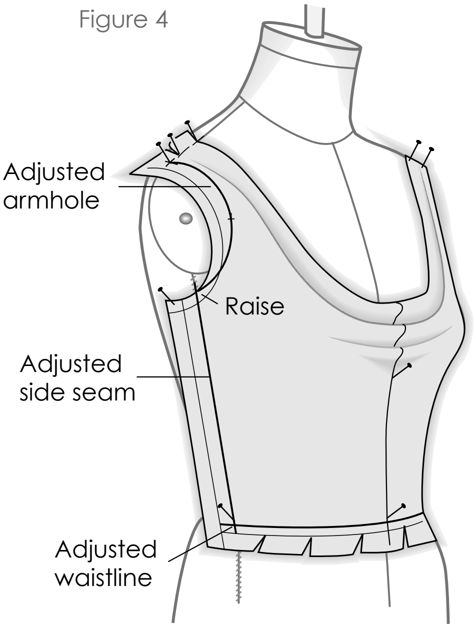

Tissue
Fabric
Add 1 " allowance
True bias
FRONT COWL
Fold

Figure 4

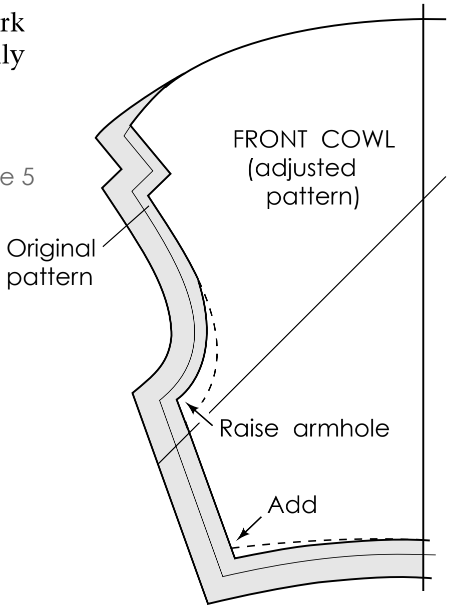

Adjusted armhole
Raise
Adjusted side seam
Adjusted waistline

Fitting the Cowl Drape

Figure 4

If there is a dart (preferably a French dart), pin or baste first. Pin cowl to the shoulderline with center lines matching. Allow the bias fabric to fall and stretch. Smooth fabric past side seams and waistline. Pin where indicated. With sharpened chalk, mark the outline of the form on the drape (right side only unless the design is asymmetric).

Figure 5


FRONT COWL (adjusted pattern)
Original pattern
Raise armhole
Add

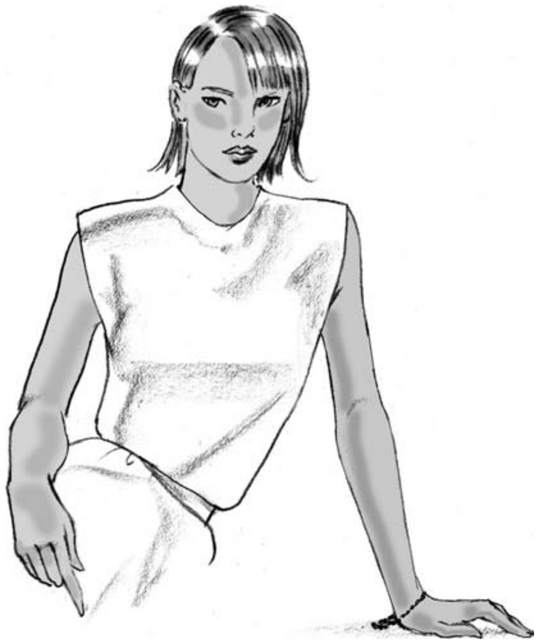
Correcting the Pattern

Figure 5

- Remove drape from the form.
- Measure the difference between the original pattern and the marked outline.
- Mark the original pattern at the chalk-marked outline and draw blending lines. Adjust the pattern (under the armhole). Recut and check the fit.

High Relaxed Cowl

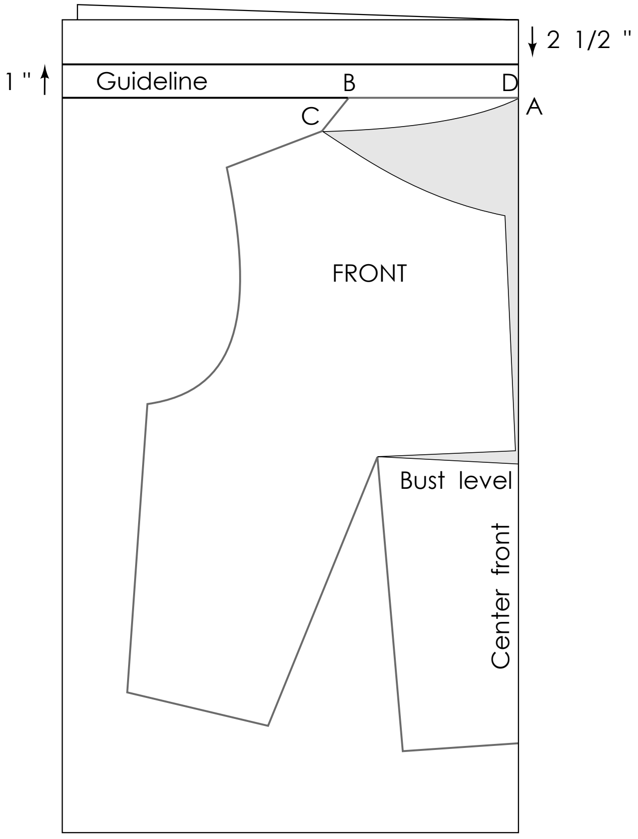
Design 1



Design Analysis: Design 1

The relaxed cowl of Design 1 indicates that some part of the dart excess was transferred to the neck cowl.

Figure 2



Pattern Plot and Manipulation

Figure 1

- Trace the front bodice pattern. Label center front neck A.
- Mark B 3/4 inch from shoulder neck.
- Mark C 3/4 inch from B.
- Draw slash lines from A to B and from A to C.
- Square a slash line from center front to bust point.
- Cut the pattern from paper along A-B line, discarding unneeded section. Broken line is original neckline.
- Cut slash lines to, not through, the bust point and point C.

Figure 1

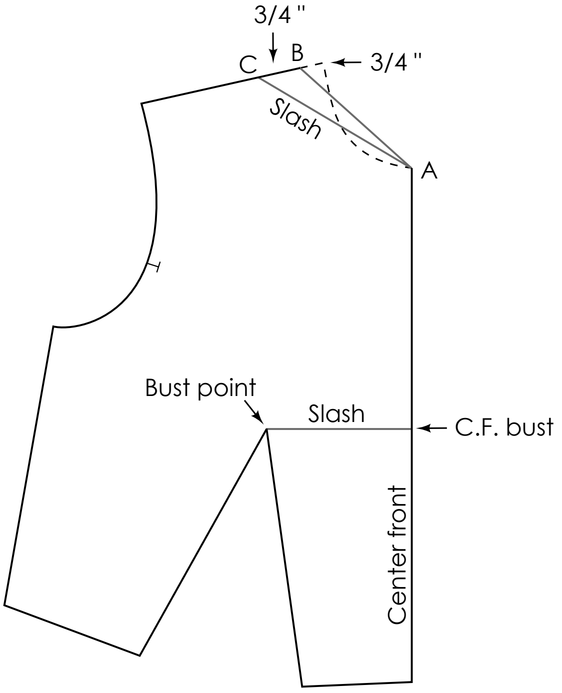


Figure 2

- Fold paper. Square a guideline 2 1/2 inches down from paper's edge and label D.
- Draw a parallel line 1 inch up from point D (foldback facing).
- Place the pattern on paper so that point B touches the guideline and point A touches point D.
- Align center front with the fold of the paper below bust level (transfers some dart excess to the center front).
- Trace the pattern starting from B and ending at center front waist. Remove pattern.

Figure 3
- Fold across A-B line.
- Trace shoulder and blend. (Broken line is original shoulder.)

Figure 4
- Cut the pattern from paper and unfold.
- Draw a 45° grainline for bias.
- Follow the instructions given for the first fitting in Figures 3, 4, and 5 starting with the finding True Bias section two pages back.

Figure 3

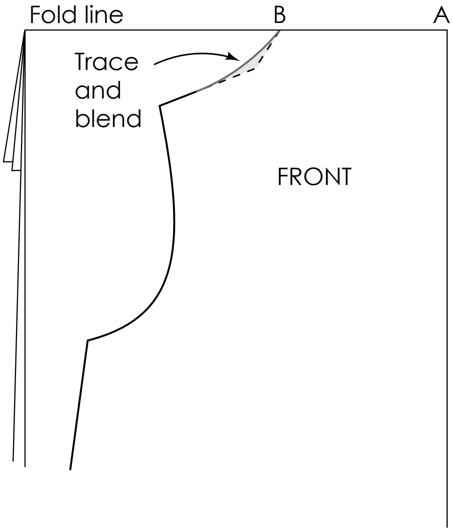

Fold line
B
A
Trace
and
blend
FRONT

Figure 4

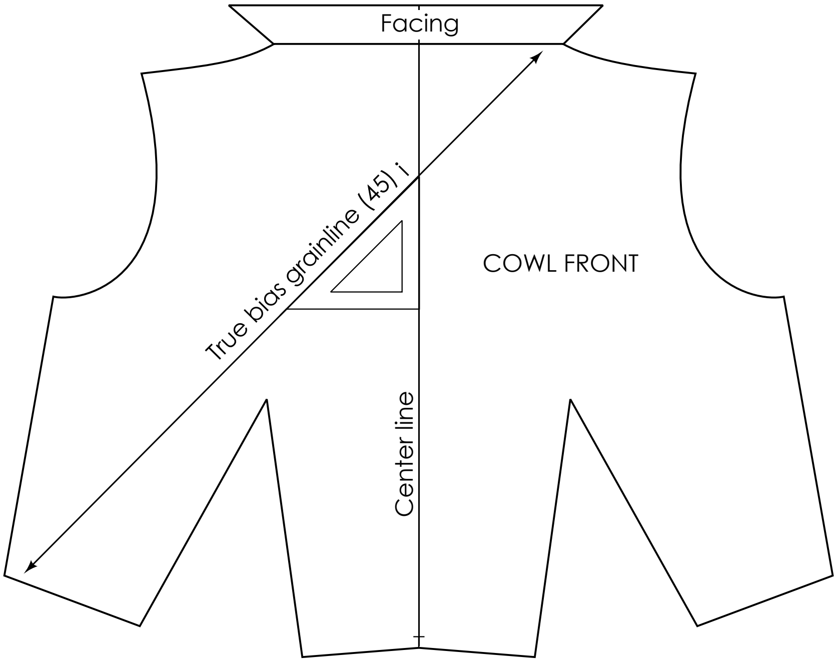
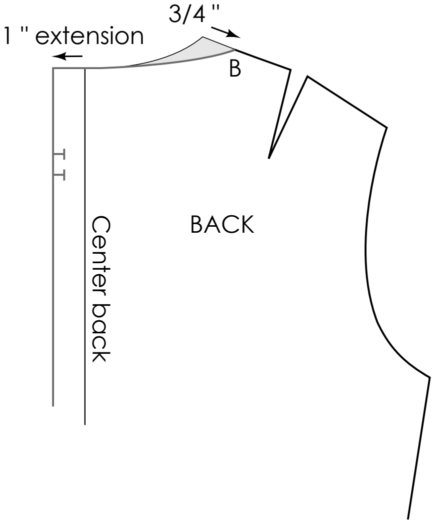

Facing
True bias grainline (45) i
COWL FRONT
Center line

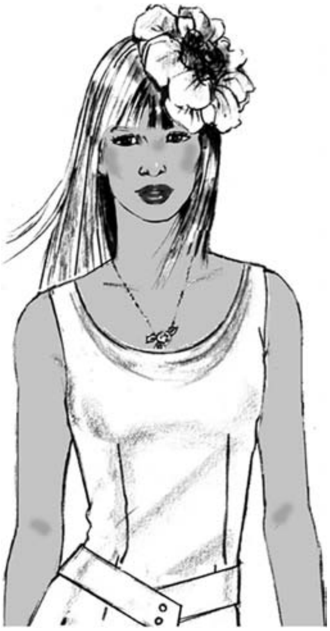
Figure 5
- Trace the basic back pattern.
- Mark B 3/4 inch from shoulder/neck.
- Draw the neckline from back neck, curving to B.
- Extend center back 1 inch.
- Draw a grainline cut and stitch to cowl front after the first fitting.

Figure 5


3/4 "
1 " extension
B
BACK
Center back

Mid-Depth Cowl

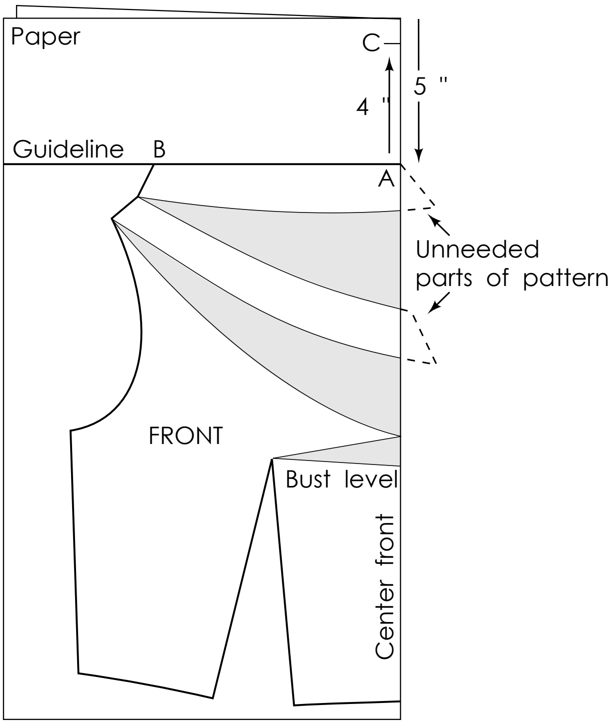
Design 2



Design Analysis: Design 2

The cowl falls from mid-shoulder to a depth between the neck and bust level. The depth of the cowl takes up one-half of the waist dart excess. The fold-back facing is rounded.

Figure 2


Paper
C
4 "
5 "
Guideline B
A
Unneeded
parts of pattern
FRONT
Bust level
Center front

Pattern Plot and Manipulation

Figure 1 Front

- Trace the front bodice and square a slash line from center front to the bust point (bust level).
- Mark A between the center front neck and bust level.
- Mark B at mid-shoulder and draw a line to A.
- Draw a slash line from shoulder tip to bust level and another in between.
- Cut the pattern from paper.
- Cut slash lines to, not through, the shoulder and bust point.

Figure 1

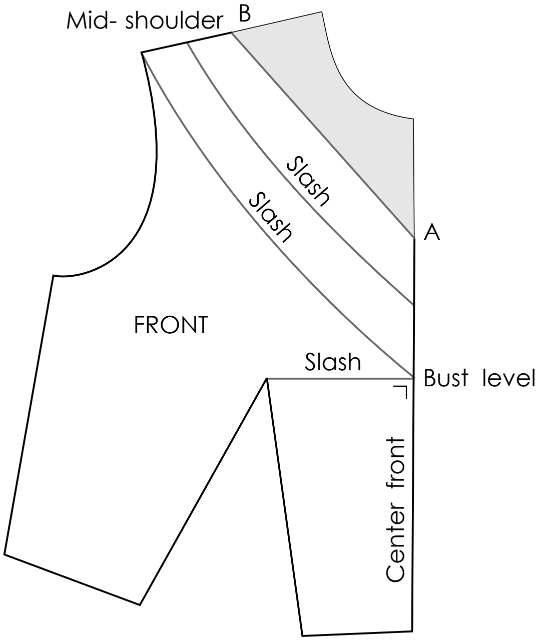

Mid- shoulder B
Slash
Slash
A
FRONT
Slash
Bust level
Center front

Figure 2

- Fold the paper and square a guideline 5 inches down from paper's edge.
- Place the pattern on paper so that A-B line touches the guideline and point A touches fold of the paper.
- The center front pattern is placed on the fold below bust level.
- Trace the pattern, starting from B and ending at center front waist.
- Mark C 4 inches up from A for fold-back facing.

Figure 3

- Fold on the A-B line and trace the shoulder.
- Blend the shoulder (broken line is the original shoulder).
- Draw and trace the facing (1 1/4 inches wide at shoulder).

Figure 4

- Unfold and draw the traced facing.
- Draw a 45° grainline for bias and cut from the paper. Follow the instruction given for the first fitting in the Fitting the Cowl Drape section earlier in this chapter, Figures 3, 4, and 5.

Figure 3

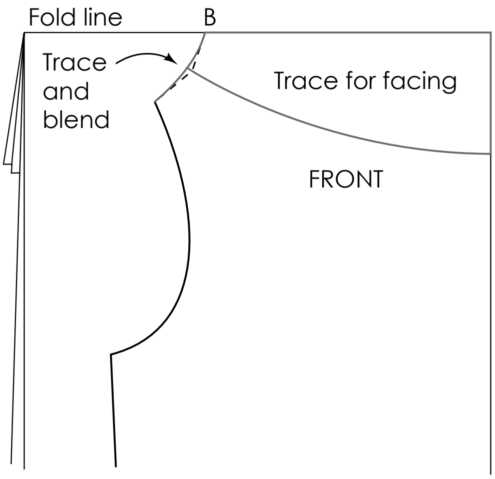

Fold line
B
Trace and blend
Trace for facing
FRONT

Figure 4

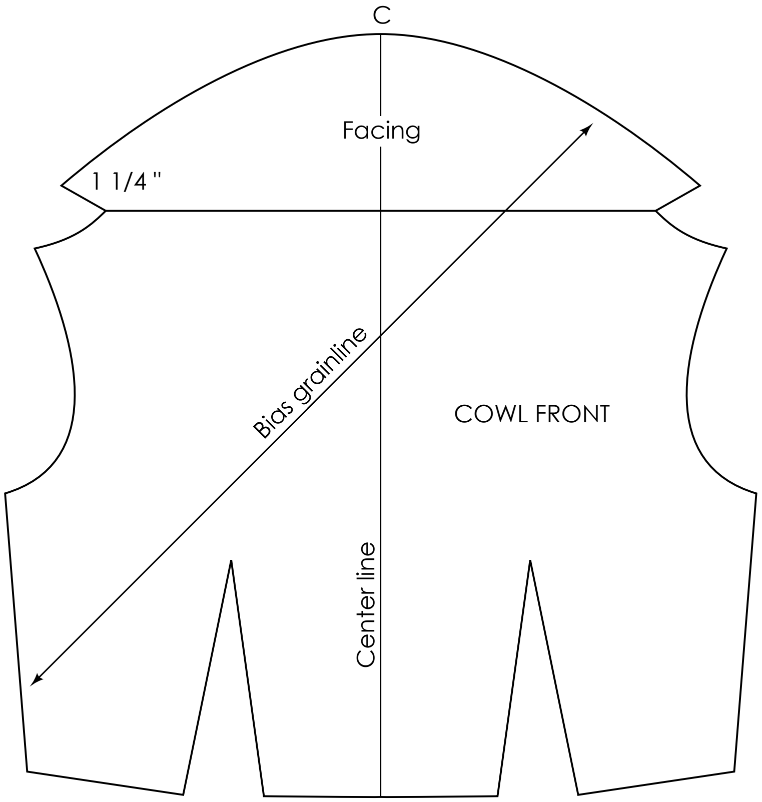
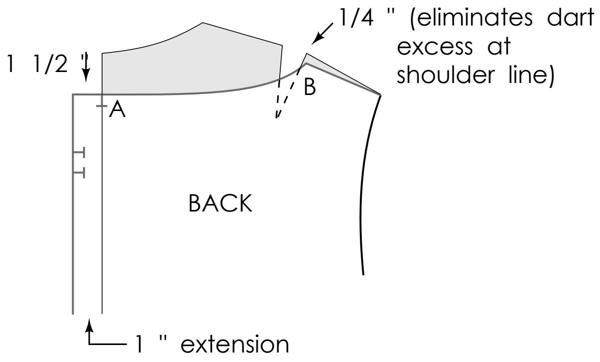

C
Facing
1 1/4 "
Bias grainline
COWL FRONT
Center line

Figure 5

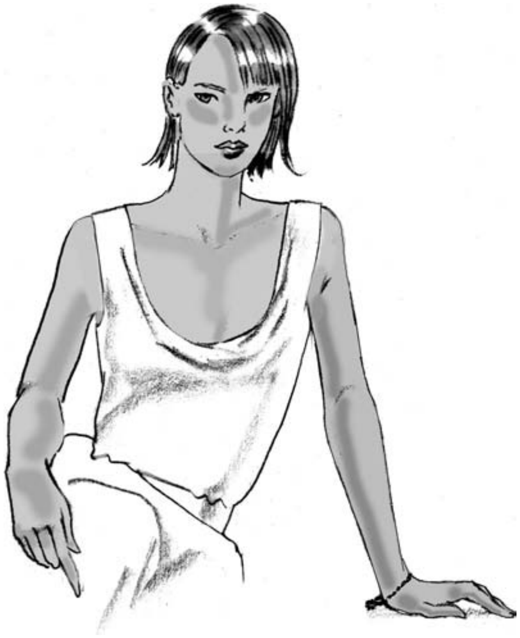
- Trace the basic back pattern.
- Mark A 1 1/2 inches below center back.
- Mark B 1/4 inch down from mid-shoulder.
- Draw the neckline from A, curving the line to B.
- Draw a parallel line 1 inch from center back.
- Draw a straight grainline.
- Cut and stitch to the front cowl after the first fitting.

Figure 5


1 1/2 "
1/4 " (eliminates dart excess at shoulder line)
A
B
BACK
1 " extension

Low Cowl

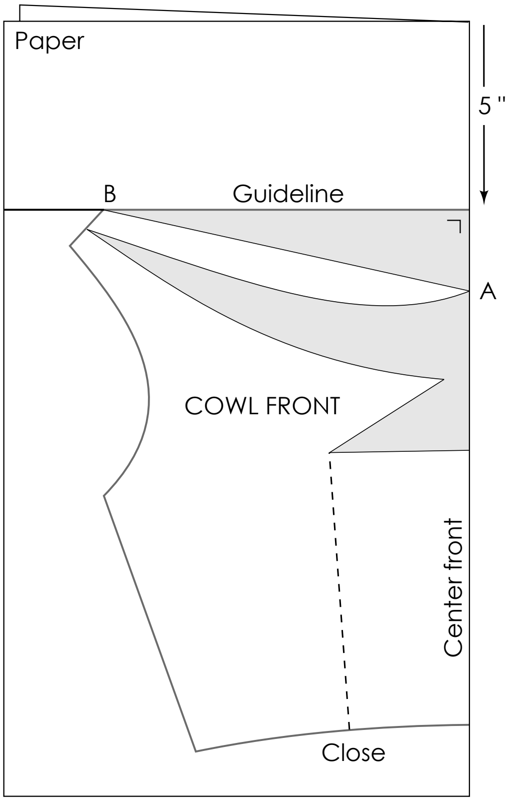
Design 3



Design Analysis: Design 3

The low cowl drapes at or slightly below bust level. All of the waist dart excess is transferred to the neckline for a cowl of this depth.

Figure 2



Pattern Plot and Manipulation

Figure 1

- Trace front bodice.
- Square a line from center front to the bust point. Label A (bust level).
- Mark B 1 1/2 inches from shoulder tip. Draw a line from A to B.
- Draw a slash line between the shoulder tip and point B, ending at point A.
- Cut from paper.
- Cut slash lines to, not through, the shoulder and bust point.
- Close dart leg. Tape.

Figure 1

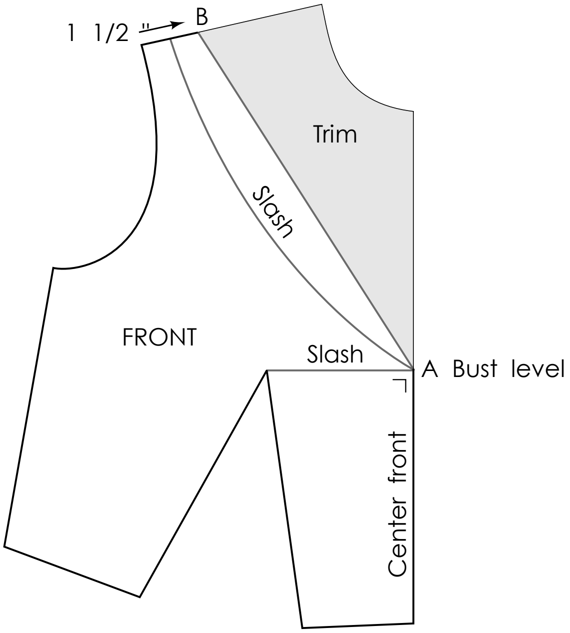
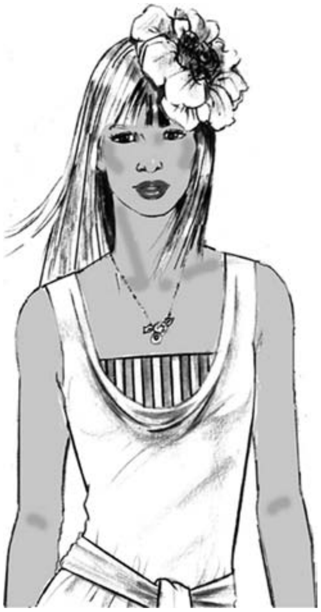


Figure 2

- Fold the paper and square a guideline 5 inches down from paper's edge at fold.
- Place the pattern with center front on fold and point B on the guideline. Spread sections until point A touches center front fold.
- Secure and trace from B to center front waist.
- Draw fold-back facing. See Figure 3 within the Deep Cowl section, two pages ahead.
- Develop the back pattern using instructions in Figure 4 with the Deep Cowl section, two pages ahead, as a guide.
- Complete the pattern for test fit.

Deep Cowl

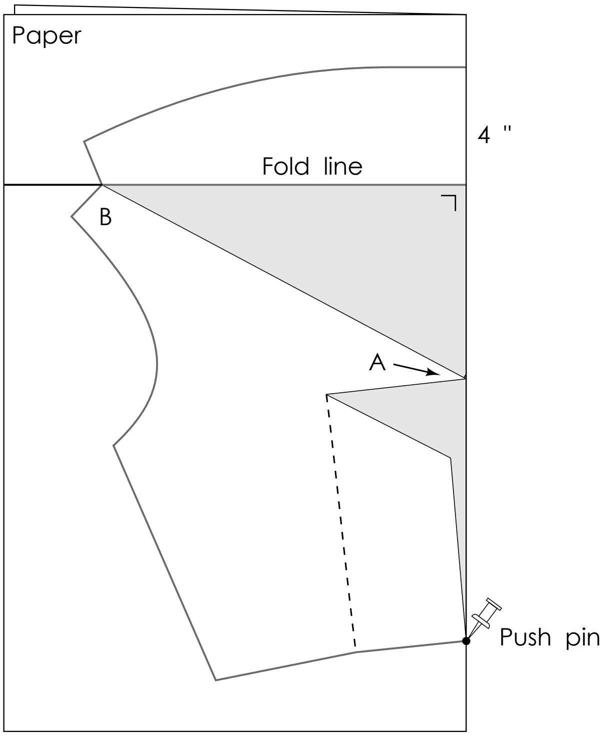
Design 4



Design Analysis: Design 4

Deep cowls are usually designed with a strapless top. They can be stitched into the side seam of the cowl bodice (as illustrated) or continued around to the back. Cowls that fall below bust level indicate that fullness has been added to the center front.

Figure 2



Pattern Plot and Manipulation

If you are not using the Contour Guide Patterns, use the measurements given.

Figure 1 Cowl Pattern

- Mark cowl depth 2 inches down from bust level. Label A.
- Mark B 1 1/2 inches from shoulder tip. Draw a line from B to A and from A to bust point.
- Trim neckline (shaded area).
- Cut slash lines A from, not through, the bust point.
- Close the dart legs.

Figure 1

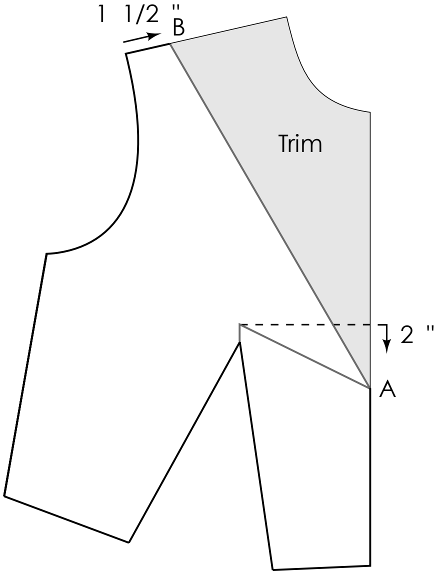


Figure 2

- Fold paper.
- Place waist at fold. With a pushpin, pivot the pattern until point A touches the fold.
- Trace the pattern from B to center front waist.
- Square a line from the fold, touching B.
- Draw the facing as illustrated (uneven broken lines).
- Follow the instructions given for the first fitting in Figures 3, 4, and 5 starting with the finding True Bias section earlier in this chapter.

Figure 3

- Unfold, mark notches, draw bias grainline, add seams, and cut from the paper.

Figure 3

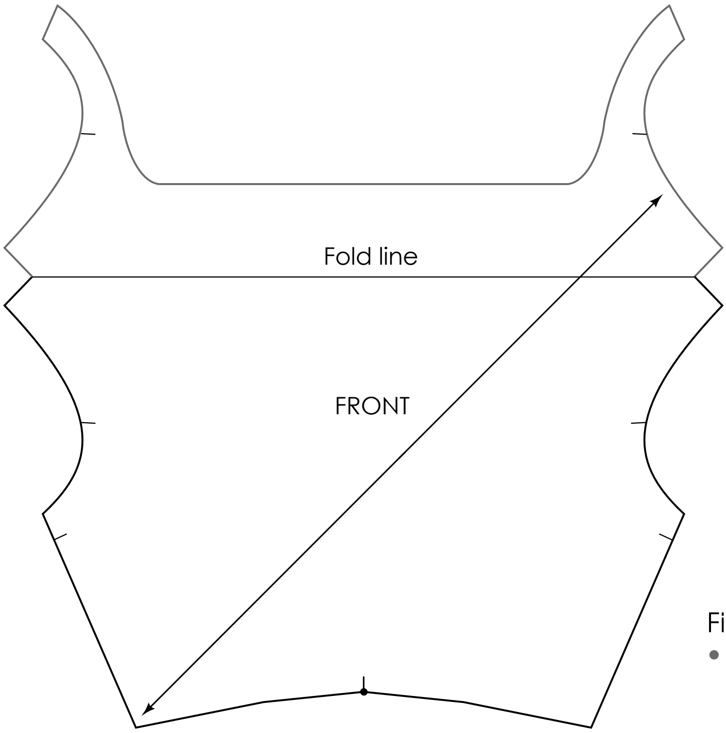
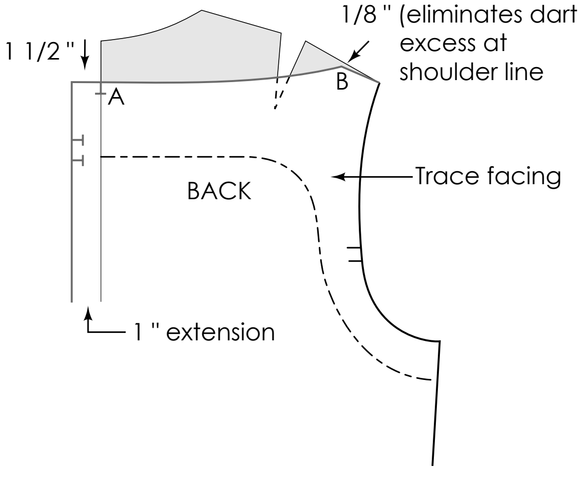

Fold line
FRONT

Figure 4 Back Pattern

- Trace the back pattern. Draw neckline using the measurements given.
- Draw the facing (uneven dash lines).
- Add seams and extension. Cut from the paper. Mark notches and grainline.
- Trace facing.

Figure 4


1 1/2 "
A
B
1/8 " (eliminates dart excess at shoulder line)
BACK
Trace facing
1 " extension

Strapless Top

Figure 5

- Plot strapless top on a traced copy of the bodice. Use contour guides #6 and #4, or use the measurements given.

Figure 5

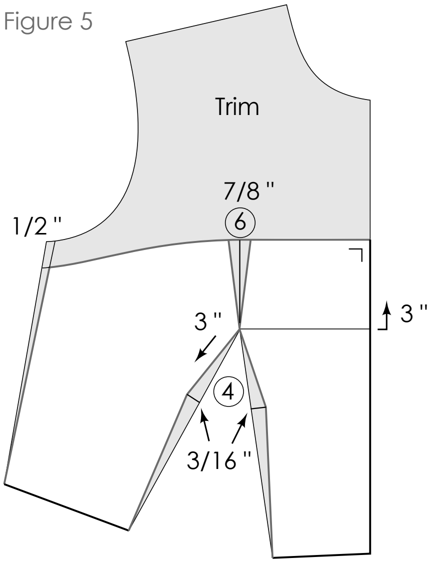

Trim
7/8 "
6
1/2 "
3 "
3 "
4
3/16 "

Figure 6

- Blend princess line and mark notches.

Figure 6

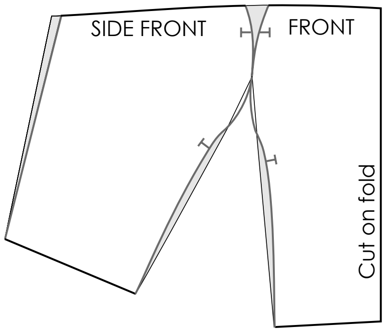
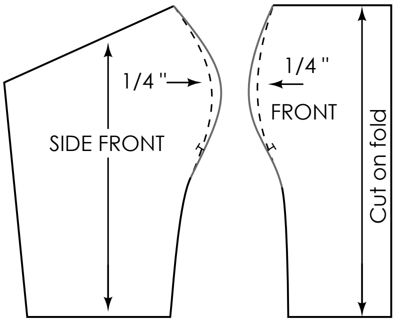

SIDE FRONT
FRONT
Cut on fold

Figure 7

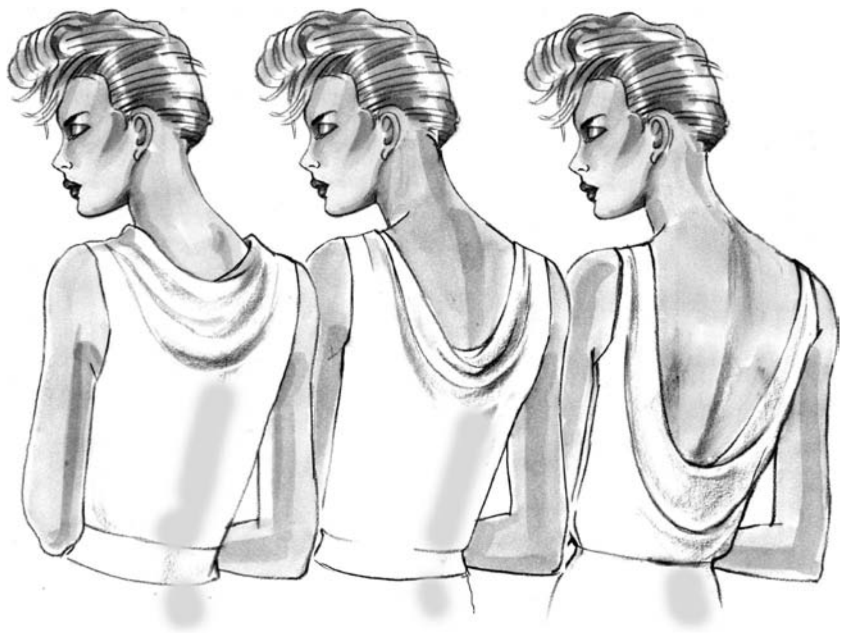
- If boning is attached, add 1/4 inch at bust point. Separate patterns on the curved princess lines; add seams.
- Cut 2 self and 2 for lining.

Figure 7


1/4 "
SIDE FRONT
1/4 "
FRONT
Cut on fold

BACK COWLS

Back cowls are developed with the use of a square ruler. Designs 1, 2, and 3 illustrate a high, medium (mid-center), and low cowl.


Design 1
Design 2
Design 3

High-Back Cowl

Pattern Plot and Manipulation

Figure 1

Paper Needed

- Cut a 36-inch square of paper and fold.

Back Set Aside

- Mark A 4 inches down from back neck.
- Mark B at the dart leg and at mid-shoulder.
- Measure from A to B (includes dart excess). Record.
- Mark C from center back waist equal to the width between the dart legs.

Figure 1

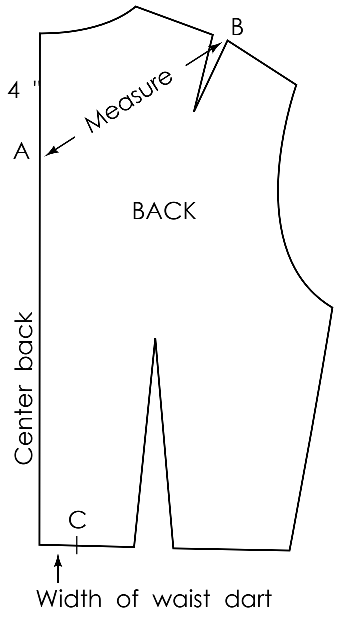

B
4 "
Measure
A
BACK
Center back
C
Width of waist dart

Figure 2

- Square a line 4 inches down from the fold that equals the A-B measurement. Label.
- Place the pattern on the paper so that point B of the pattern and the paper touch and point C touches the fold.
- Secure and trace the pattern indicated by the blue line, omitting the part indicated by the broken lines, and remove the pattern.
- Draw a slightly curved line from B to shoulder tip.

Figure 2

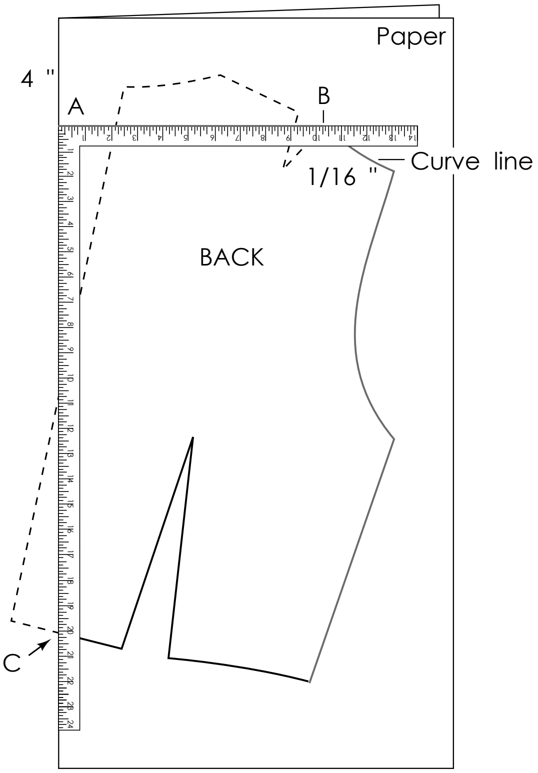


Figure 3

- Square a line from the fold, touching the dart leg, and blend the hemline, as shown.

Figure 3

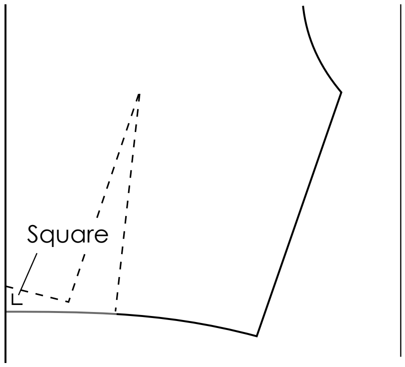


Figure 4

- Crease-fold paper on the A-B line. Trace shoulder.
- Draw a curved line 3 inches down from center front on fold and end 1 1/4 inches from B on the shoulderline. Trace.

Figure 4

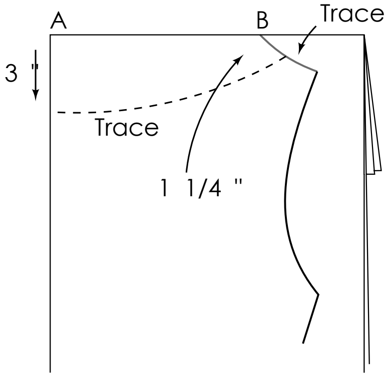
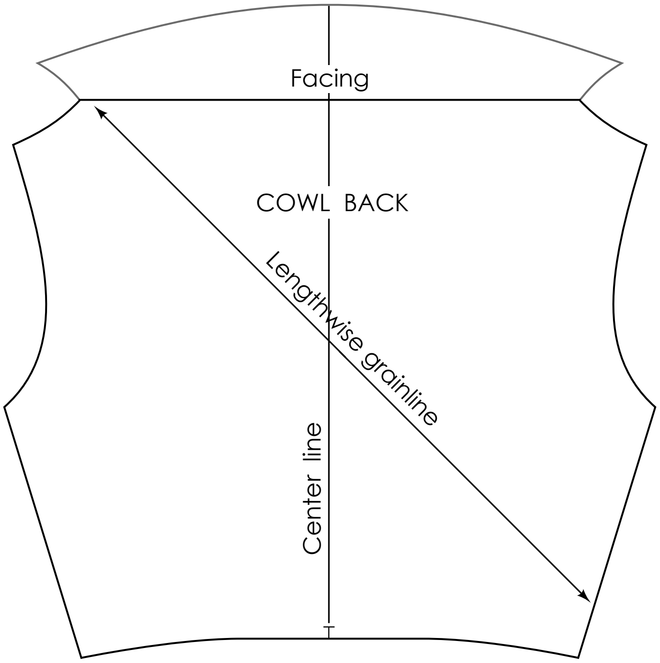


Figure 5

- Unfold pattern and pencil perforated marks.
- Draw a 45° grainline for bias.
- Add seams and notches and cut for test fit, following the instructions in Figures 3, 4, 5 within the finding True Bias section earlier in this chapter. After the front pattern is draped and the pattern corrected, adjust shoulderline of the basic back to complete the garment. The basic pattern is usually cut on the lengthwise grain.

Figure 5

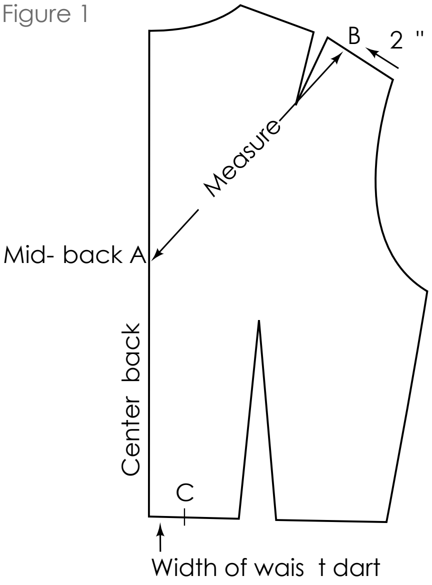


Mid-Back Cowl

Figures 1 and 2

- Mark A midway between neck and waist.
- Mark B 2 inches from shoulder tip.
- Measure from A to B. Record.
- Mark C to equal dart intake.
- Follow instructions given in Figures 2, 3, 4, and 5 within the finding True Bias section earlier in this chapter.

Figure 1


B
2 "
Measure
Mid- back A
Center back
C
Width of wais t dart

Low-Back Cowl

Figures 1 and 2

- Mark A 4 inches up from center back waist.
- Mark B 1 inch from shoulder tip.
- Measure from A to B. Record.
- Mark C to equal dart intake.
- Follow instructions given in Figures 2, 3, 4, and 5 within the finding True Bias section earlier in this chapter.

Figure 1

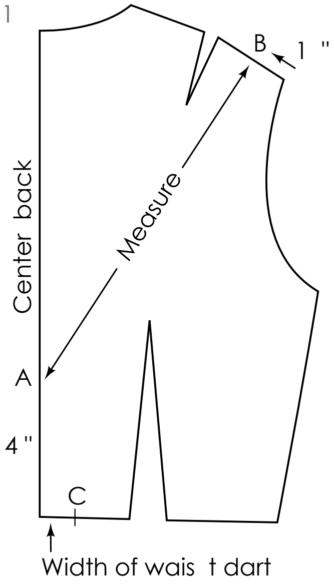

B
1 "
Center back
Measure
A
4 "
C
Width of wais t dart

Figure 2

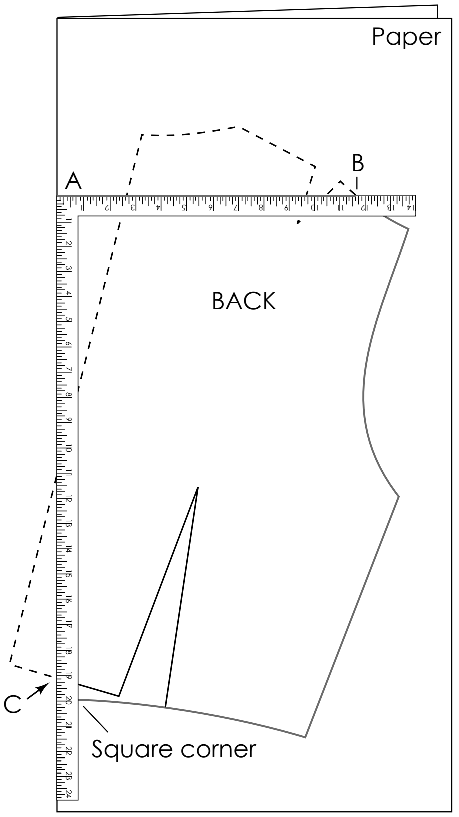
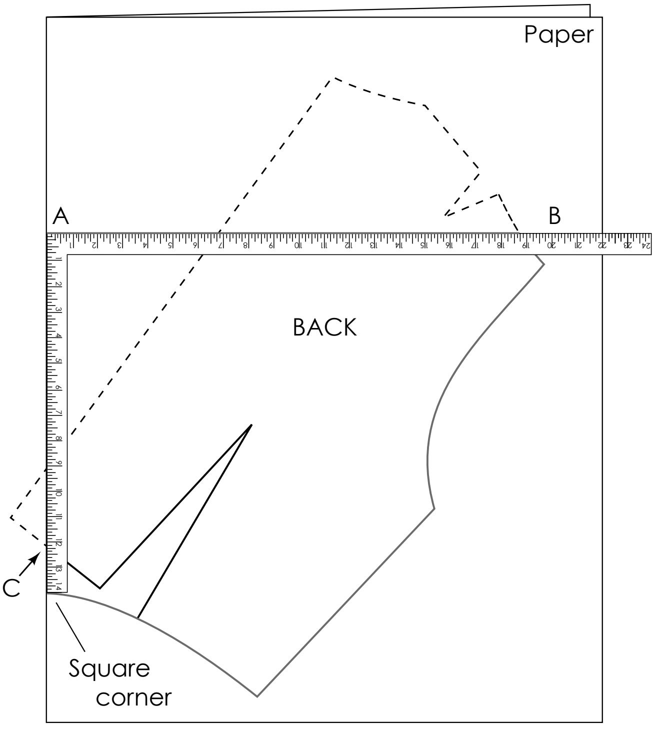
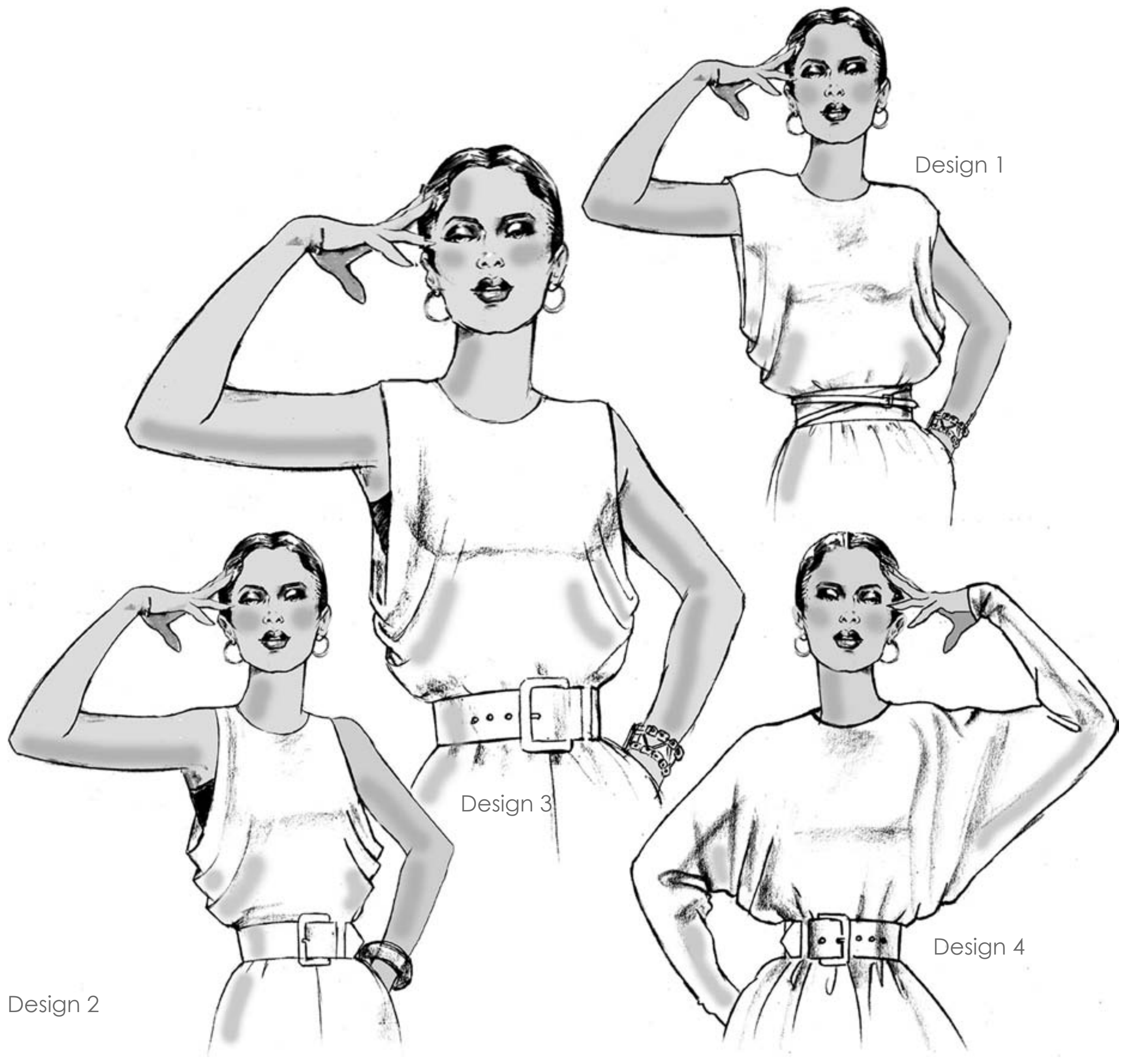

Paper
A
B
BACK
C
Square corner

Figure 2


Paper
A
B
BACK
C
Square corner

ONE-PIECE ARMHOLE COWLS


Design 1
Design 3
Design 4
Design 2

Design Analysis: Designs 1, 2, 3, and 4

Cowl drapes under armhole, replacing side seams.

Four Variations for Underarm Cowls

Design 1—Over-shoulder cowl, Figure 1
Design 2—Halter cowl, Figure 1
Design 3—Armhole cowl, Figure 2
Design 4—Cowl sleeve, Figure 2

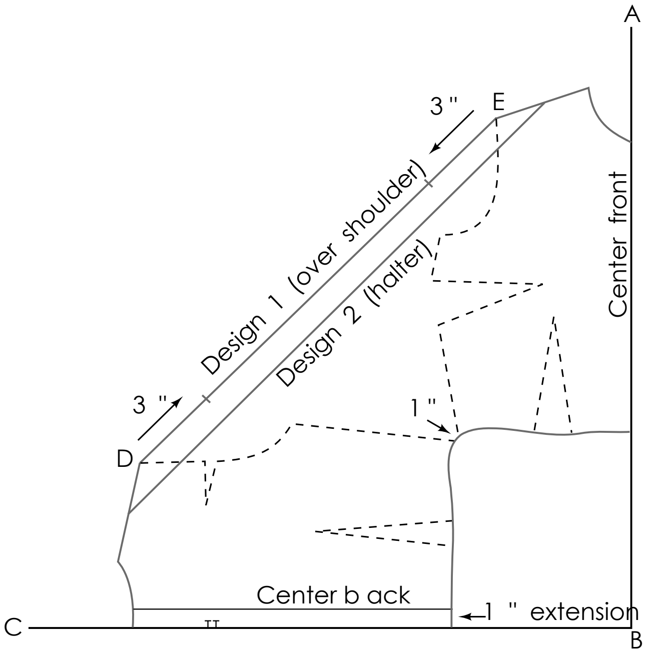
Figure 1

- Use front and back basic two-dart bodice, with shoulder dart transferred to the armhole.
- Draw a square line on paper. Label A, B, and C.
- Place front bodice on A-B line. Place back bodice 1 inch in from B-C line (for extension), with a 1-inch space between the front and back side waists for ease.
- Secure and trace the front and back pattern, omitting sections indicated by the broken lines. Remove patterns.
- Blend a curved line between front and back waist.

Design 1 Over-Shoulder Cowl

- Stitch shoulder and continue 3 inches more.

Figure 1


A
3"
E
Design 1 (over shoulder)
Design 2 (halter)
Center front
3"
1"
D
Center b ack
1" extension
C
B

Design 2 Halter Cowl

- Draw a line from front mid-shoulder to back mid-shoulder.

Figure 2

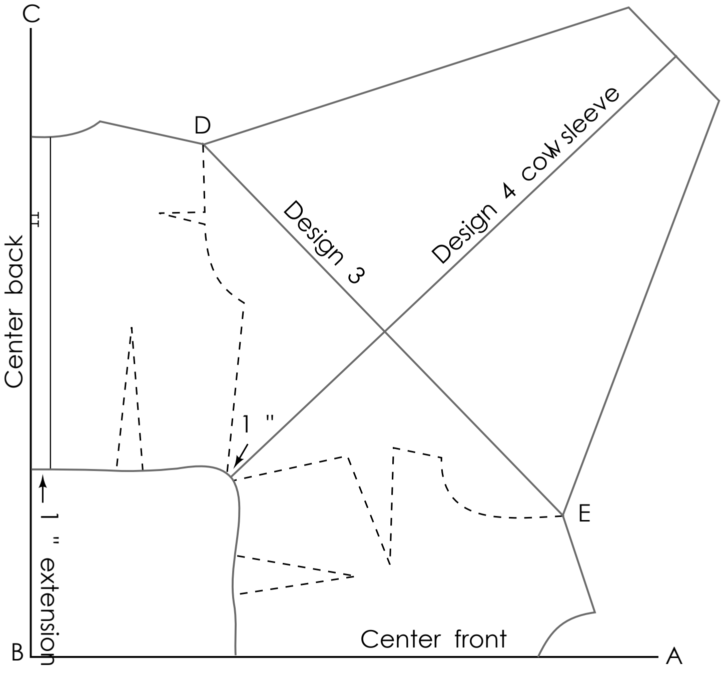
Design 3 Sleeveless Cowl

- Draw a line connecting the front and back shoulder tips. Label D-E.

Design 4 Long-Sleeve Cowl

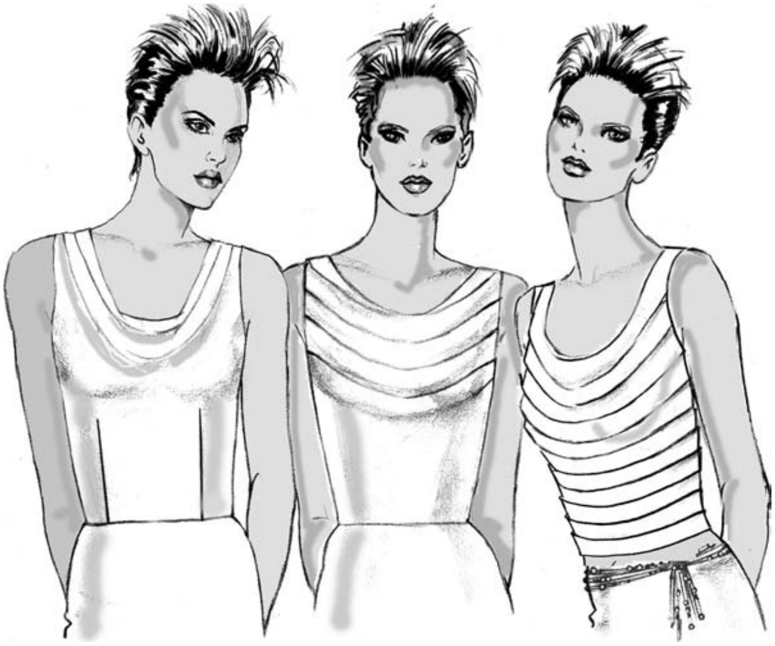
- Draw a line connecting the shoulder tips. Label D-E.
- Mark the center of the D-E line and draw a line to the side waist. From this point, extend the line to equal the desired sleeve length. (Add length if gathers are desired.)
- Square a line out from both sides that equals the wrist measurement plus 1 1/2 inches (one-half on each side).
- Draw a line to points D and E (over the arm seam).

Figure 2


C
D
Design 3
Design 4 cow sleeve
Center back
1"
E
1" extension
B
Center front
A

PLEATED COWLS

Pleats control the fold of cowls and add fullness. The instructions that follow show the development of cowls with pleats along the shoulderline. The same procedure can be used for cowls with pleats along the armhole and side seams. Cowl designs show some of the possible cowl variations created with pleats. Development of Design 1 is illustrated. For practice, develop patterns for Designs 2 and 3.



Design 1 Design 2 Design 3

Pleated Shoulder Cowl

Design Analysis

Design 1 has two pleats at shoulderline with the cowl depth above the bust level.

Pattern Plot and Manipulation

Figure 1 Front

- Trace front pattern and square a slash line from the center front to bust point (bust level).
- Mark A between the neck and bust level.
- Mark B at mid-shoulder.
- Draw a line from A to B.
- Draw two slash lines, each starting between point B and the shoulder tip and ending between point A and bust level.
- Cut the pattern from paper.

Figure 1

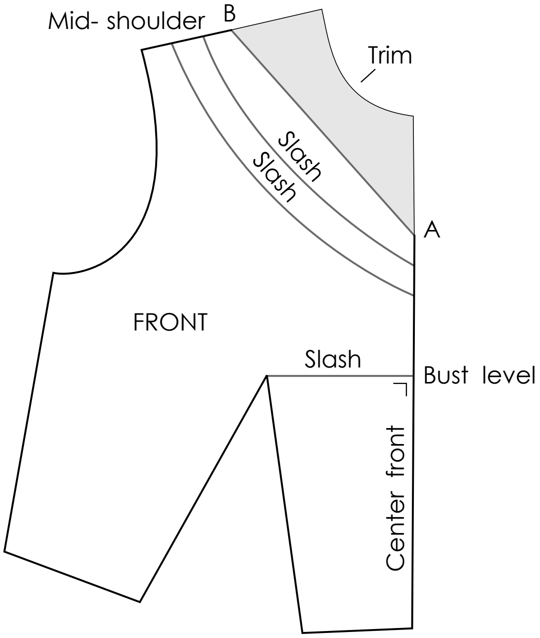


Figure 2

- Fold the paper. Square a guideline 4 inches down from the fold.
- Cut slash lines to, not through, shoulder.
- Place section A-B on guideline and center front of pattern, touching fold line. (Part of waist dart will close and the slashed sections will spread.)
- Secure pattern sections.
- Draw a parallel guideline 2 inches in from center front, passing through pattern sections.

Figure 2

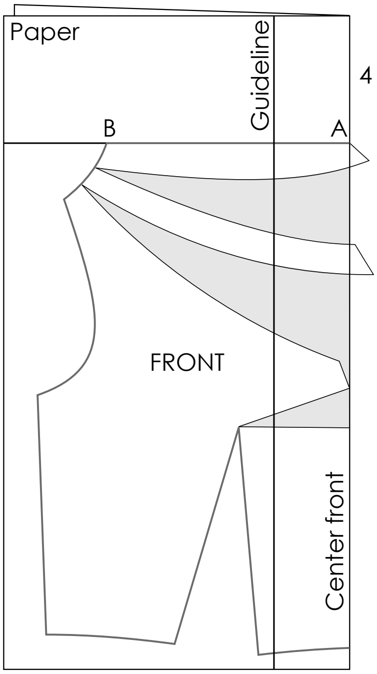


Figure 4

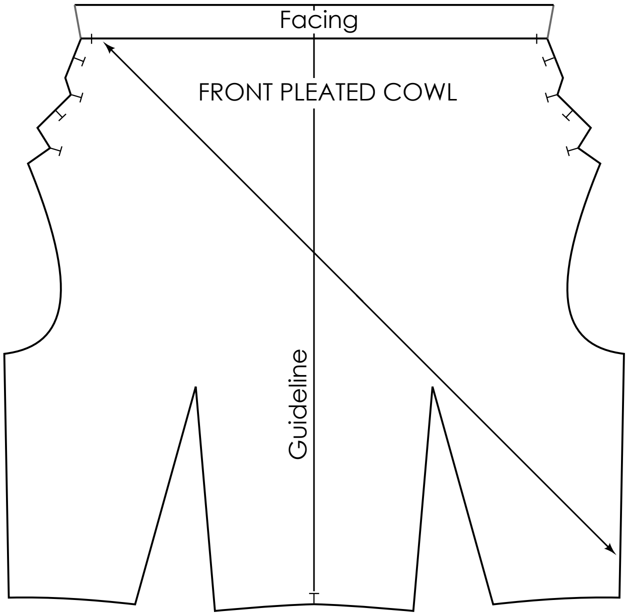


Figure 3

- Release the shoulderline.
- Spread each section 1 1/4 inches or more at shoulder (pleat depth), keeping each section on the guideline. Secure.
- Trace outline of the pattern and corner of each spread section along shoulder for pleats.
- Remove the pattern.
- Mark centers of each pleat, connect the lines following the angle of the arrows, and end at center mark. Mark notches at each pleat.
- Draw a parallel line 1 inch above A-B line for fold-back (facing).

Figure 3

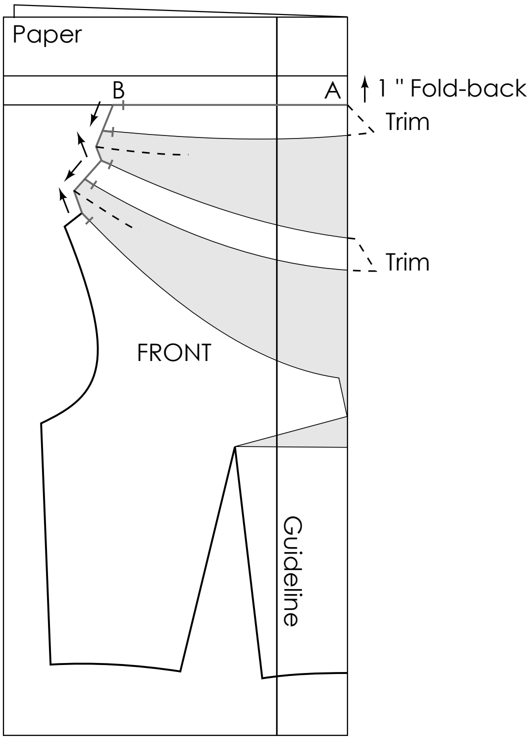


Figure 4

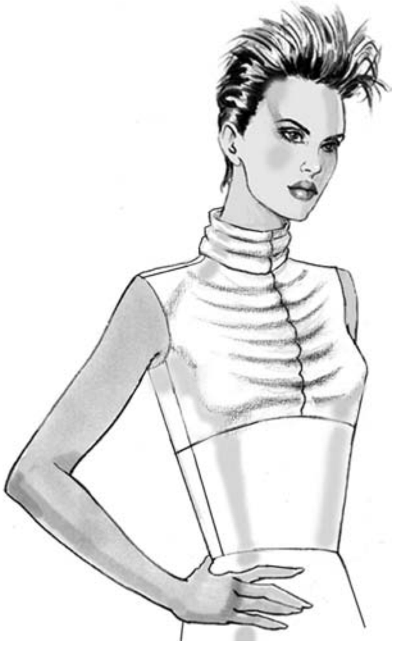
- Cut the pattern from paper. Unfold.
- Draw a bias grainline.
- Complete the pattern for test fit.
- Follow the instructions given for the first fitting in Figures 3, 4, and 5 within the finding True Bias section earlier in this chapter.
- To complete the back pattern, follow the instructions within the Mid-Depth Cowl section earlier in this chapter, Figure 5 as a guide.

EXAGGERATED COWLS

Fuller cowls can be achieved without pleats by spreading the pattern beyond the 90° square line at center front. This type of design requires a seam at the center line. The empire pattern was used to develop the design illustrated; however, any pattern may be used.

High Exaggerated Cowl

Design 1



Design Analysis: Design 1

Design 1 features deep cowl folds having a center front seam.

Pattern Plot and Manipulation

Measurement Needed

(12) __________ (one-fourth of neck measurement).

Figure 1 Front

- Trace the basic front empire bodice and midriff.
- Extend a line up from center front neck and square a line 1 inch above shoulder/neck equal to one-fourth of neck measurement plus 1/4 inch.
- Square down to shoulder. Blend a curved line with the shoulderline. Label A and B.
- Draw slash lines, with one slash line squared to bust point.
- Cut the pattern from the paper.

Figure 1

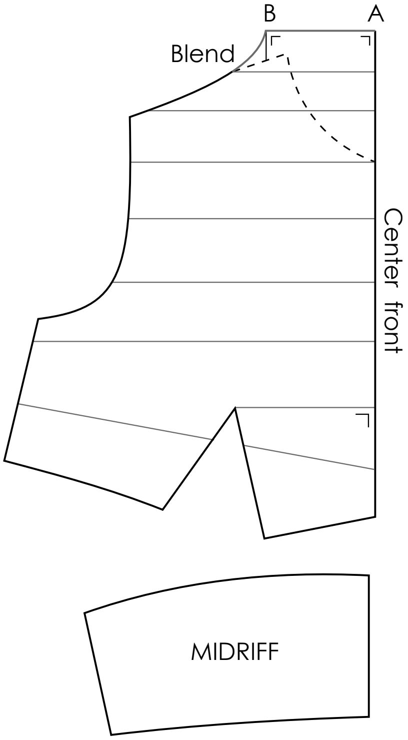


Figure 2

- Cut slash lines from center front to, not through, the sides and bust point.
- Close the dart legs. Tape.
- Place on the paper and spread equally, or vary to control fullness, as shown.
- Trace the outline of the pattern.

Figure 2

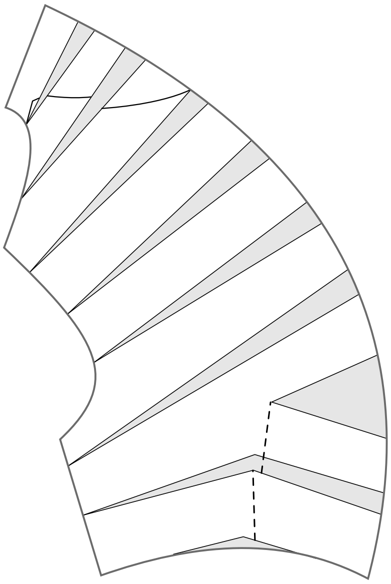


Figure 4 Back

- Trace the basic back empire bodice and midriff.
- Mark 1 inch up from the shoulder/neck.
- Square a line from center back touching a mark, equal to one-fourth of neck measurement plus 1/4 inch.
- True the front and back shoulderlines.
- Draw a grainline and complete pattern for test fit.

Securing gathers: Center front bodice gathers should be secured with twill tape cut to a finished length, or use elastic to hold gathers in place.

Figure 3

- Exaggerated pattern shapes should be labeled for identification.
- Draw a grainline for bias.

Figure 3

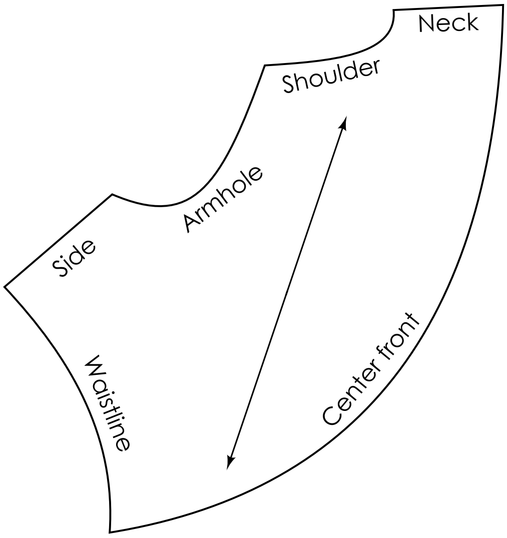
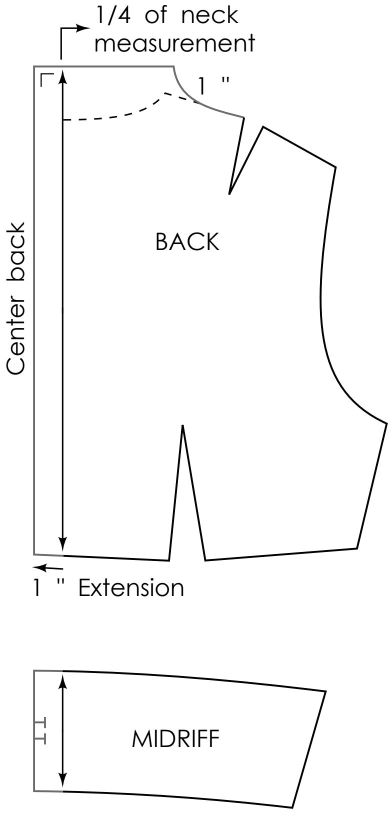

Neck
Shoulder
Armhole
Side
Waistline
Center front

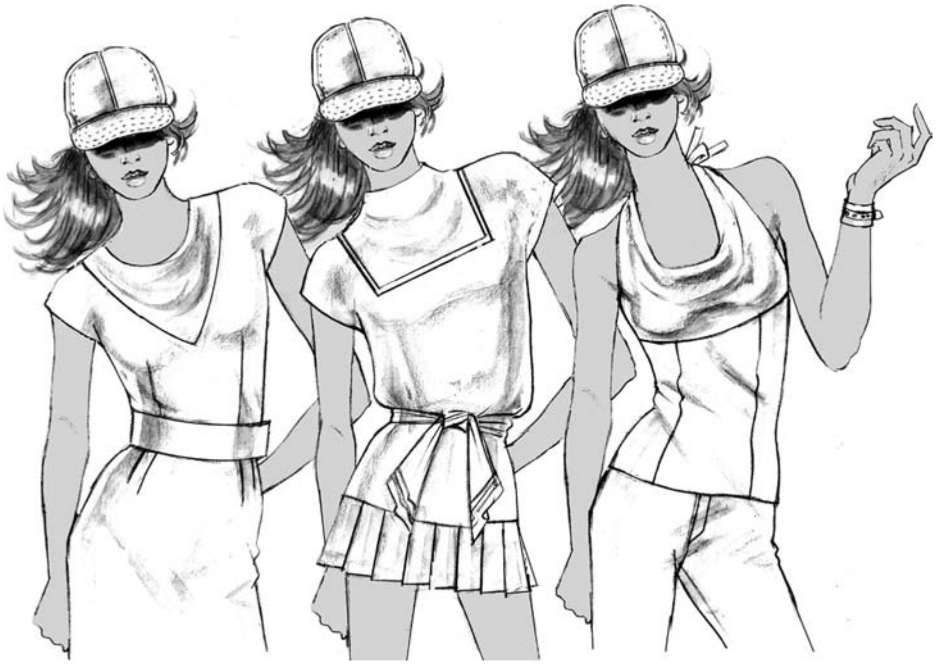
Figure 4


1/4 of neck measurement
1 "
BACK
Center back
1 " Extension
MIDRIFF

INSET COWLS

Inset cowls can be developed on any bodice, torso, or similar garment. Any styleline cowl inset can be designed. For purposes of instruction, the cowl inset is developed and does not represent a complete pattern. Back patterns are not illustrated. Designs 2 and 3 are included as practice problems; use the torso foundation.

V-Inset Cowl



Design 1 Design 2 Design 3

Pattern Plot and Manipulation

Figure 1

- Trace the front two-dart pattern. Square a guideline from center front to bust point (bust level). Plot the pattern as illustrated.
- Measure down 1/16 inch from the shoulder between B and C, and draw a curved line (controls folds of the cowl when stitched to back shoulder).
- Crossmark for notch between C and D.
- Cut the pattern from paper.
- Cut the inset from the pattern (A, B, C, and D areas). (Lower section of pattern is used to complete the design.)

Figure 1

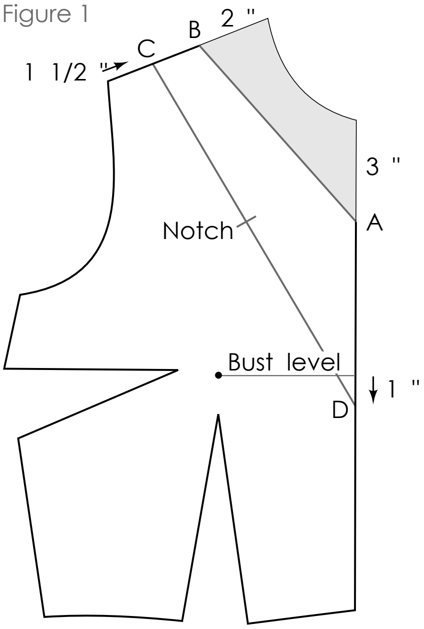


Figure 2

- Trace the inset cowl section on the center of the paper.
- Locate the A-B measurement on one leg of the square ruler, and place at B and the other leg of ruler touching D.
- Draw a line along the ruler from B to A to D, as shown.

Figure 2

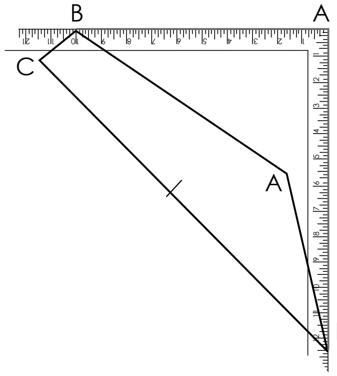
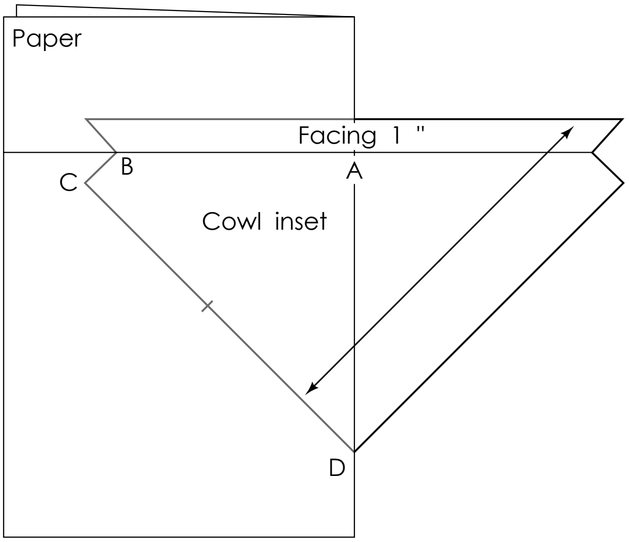


Figure 3

- Fold the paper on the A-B line. Trace the pattern.
- Draw a 1-inch line parallel with the A-B line. Fold the A-B line. Trace the shoulder.
- Unfold and complete the pattern.
- Complete the back pattern and facing.

Figure 3



SELF-EVALUATION TEST

Circle the correct answer(s). Check your answers at the end of the chapter.

Cowls drape best

1. when cut on bias
2. when cut on true bias
3. when cut on any bias

Controls cowl depth

4. Dart excess
5. Pleats
6. Pinning at shoulder

The basic dart

7. center front waist
8. waist dart
9. French dart at side seam

Cowl grains

10. fall in opposite directions
11. fall in the same direction
12. fall in any direction

Warp and weft tension

13. have the same tensions
14. have different tensions
15. no difference

Cowl folds

16. fall evenly from shoulders
17. can twist on one side
18. hang in free fall

Basic patterns

19. are not modified for bias cut
20. are modified when cut on bias
21. use another pattern

The first test cut

22. eliminates stretch
23. is re-marked for the second fit
24. is not required

An adjusted bias pattern

25. is smaller
26. is somewhat larger
27. no changes are required

A cowl facing

28. is stitched to cowl
29. is a fold-back of any shape
30. is not required.

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

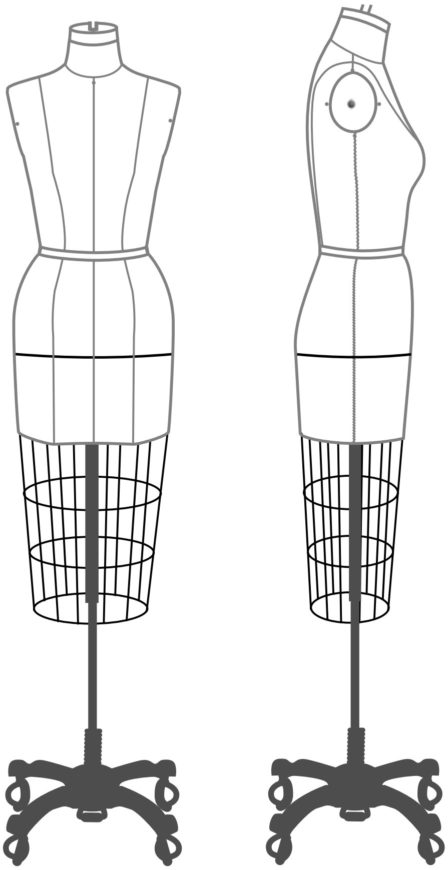
Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____

Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____

C.B. waist to floor _____

C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

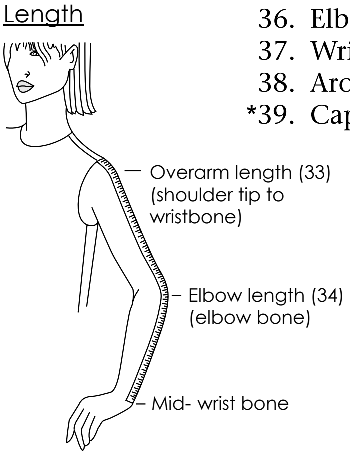
22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

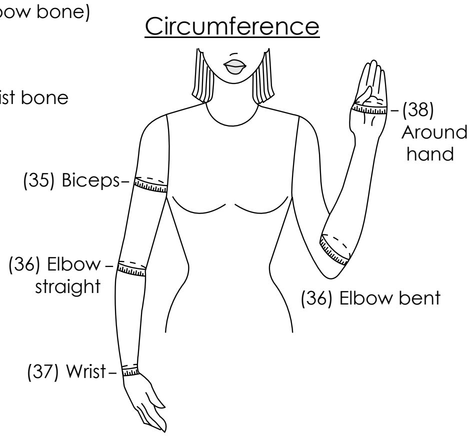
Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____


Length
Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone


Circumference
(38) Around hand
(35) Biceps
(36) Elbow straight
(36) Elbow bent
(37) Wrist

*Measuring the Arm

Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

ANSWERS TO SELF-EVALUATION TESTS

2, 4, 8, 10, 14, 17, 20, 23, 25, 29, 33

Skirts/Circles and Cascades

From Chapter 13 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

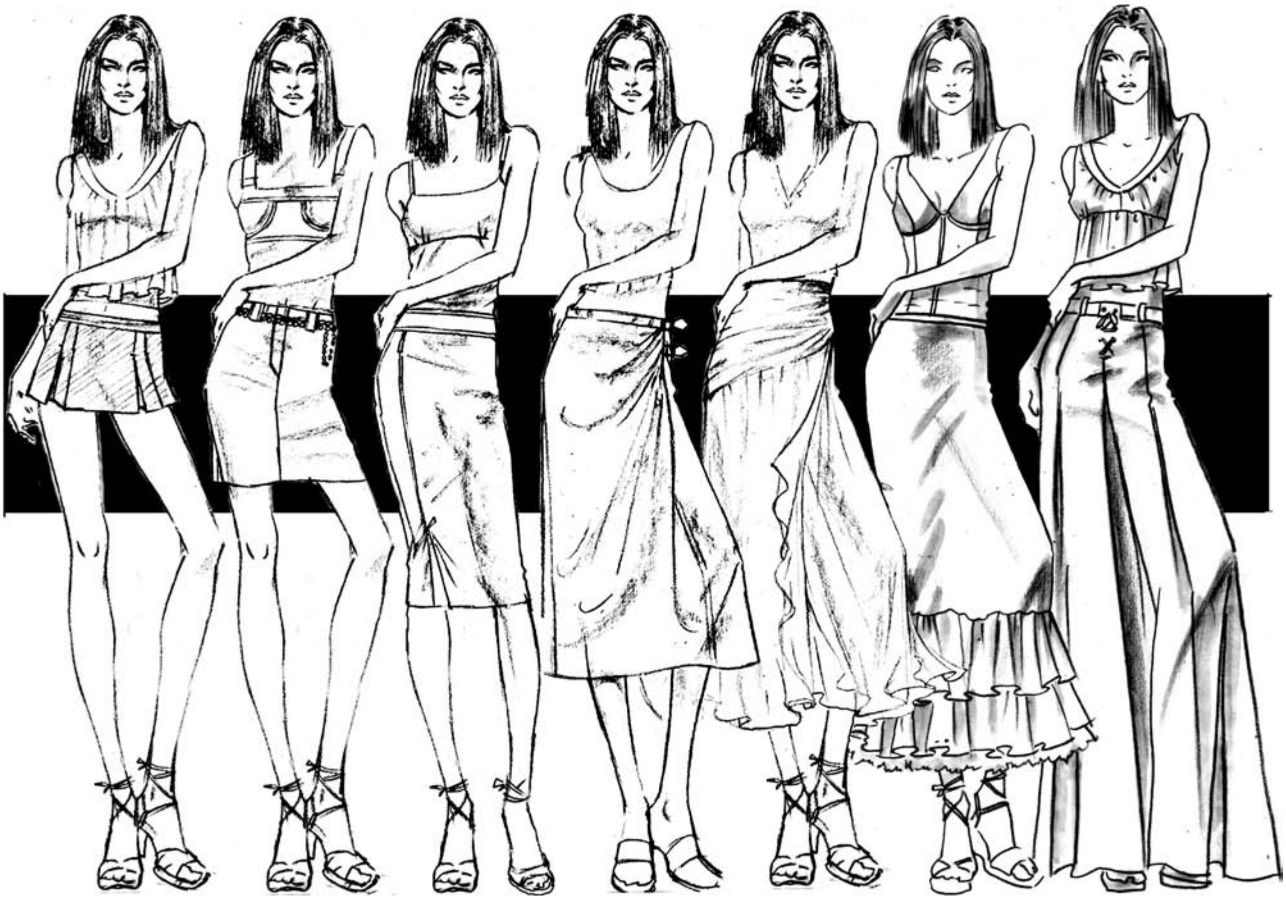
Skirts/Circles and Cascades

- INTRODUCTION
- SKIRT LENGTHS
- FOUR SKIRT FOUNDATIONS
  - Straight, or Rectangular, Shape (Basic Skirt)
  - A-Shape, or Triangular
  - Pegged, or Inverted Triangle
  - Bell-Shape
- SKIRT CHARACTERISTICS
- FLEXIBILITY OF SKIRT DARTS
- LOW-WAIST SKIRTS
- HIGH-WAIST SKIRTS
  - Preparing the Skirt
- PREPARING ZIPPER AND WAISTBAND
- BASIC WAISTBAND
  - Stitching Guide
- FLARED SKIRTS
  - A-Line Flared Skirt
  - Basic Flared Skirt
  - One-Dart Skirt Foundation
  - Flared Skirt Based on One-Dart Pattern
  - Added Flare Skirt
- SKIRTS WITH GATHERED WAISTLINES
  - Computing for Gathers
  - Flared Skirt with Gathered Waist
  - Gathered Dirndl Skirt
- GORED SKIRTS
  - 4-Gore Flared Skirt
  - 6-Gore and 8-Gore Skirts
  - 8-Gore Pleated Skirt
  - 12-Gore Skirt
  - 12-Gore Graduated Flare
  - Zigzag 12-Gore
- PEGGED SKIRT WITH PLEATS
- DRAPED WRAP SKIRT WITH A CASCADE
  - Asymmetric Radiating Gathers
- SKIRTS WITH YOKES
  - Yoke with Gathered Skirt
  - Diagonal Yoke with Flared Skirt
- TIERS
  - Terms
  - Attached Tiers
  - Separated Tiers
  - Peplums
- PLEATS
  - Types of Pleats
  - Pleat Terminology
  - Kick Pleats
  - All-Around Pleated Skirt
  - Inverted Box-Pleated Skirt
- GODETS
  - Basic Godet
  - Godet Variations
- WRAP SKIRT
  - Wrap Skirt with Side Seam
  - All-in-One Wrap Skirt
- CIRCLES, PEPLUMS, AND CASCADES
  - Terminology
  - Circle Within a Circle
  - Parts of a Circle
  - Radius Chart for Circle Skirts and Cascades
  - Full-Circle Skirt
  - Grainline Placement Relative to the Fall of the Flare
  - Hemline Adjustments
  - Three-Quarter Circle Skirt
  - Half-Circle Skirt
- SKIRTS WITH UNEVEN HEMLINES
  - Circular Skirt with Handkerchief Hem
  - Circular Skirt with Graduated-Length Hemline
  - Two Circles at Waist (Not Illustrated)
  - Gathered Circular Skirt (Not Illustrated)
- SKIRT DESIGN VARIATIONS
- SELF-EVALUATION TEST

INTRODUCTION

Changing the silhouette of a skirt (its outer shape, without regard to creative detailing) is one of the focal points for designers who wish to change the look and direction of fashion. A skirt whose basic shape hangs straight from the hipline to the hem is radically changed by increasing or decreasing the sweep of the hemline, moving the skirt away from or closer to the figure, or raising and lowering the waistline.

SKIRT LENGTHS


Micro Mini
Mini (mid-thigh)
Knee-length
Midi (mid-calf)
Ballerina
Ankle length
Floor length

FOUR SKIRT FOUNDATIONS

Each of the four skirt foundations has a specific name that identifies its silhouette. It is the amount of deviation from the basic skirt that determines the new silhouette.

Straight, or Rectangular, Shape (Basic Skirt)

The skirt hangs straight from hipline to hemline.

A-Shape, or Triangular

The skirt falls away from the hip, flaring out at the hemline, increasing the hemline sweep. (Circular and flared shapes are included in this category.)

Pegged, or Inverted Triangle

The skirt tapers inward from hip level to hemline. The pegged silhouette may be achieved by increasing waist and hip fullness or by tapering from the hip to the hem.

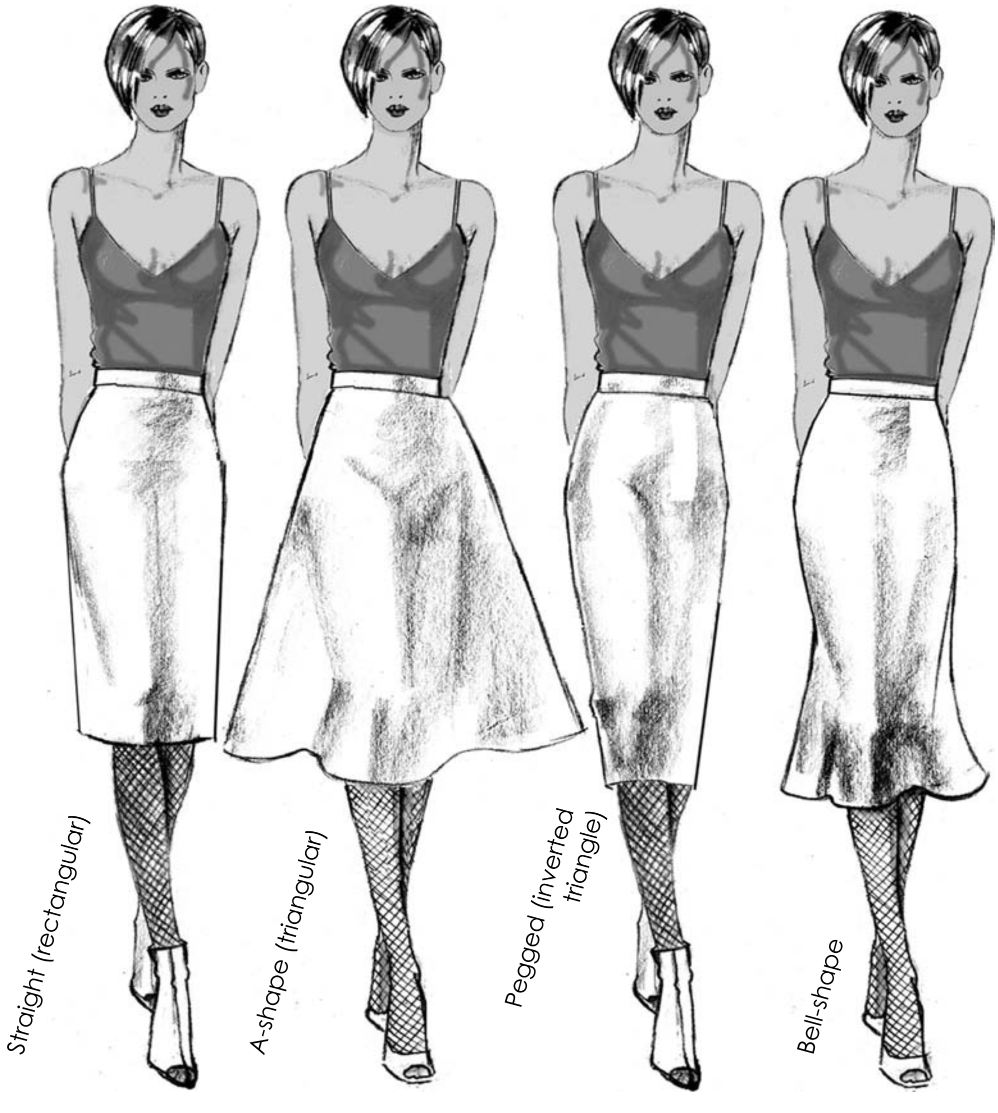
Bell-Shape

The skirt clings to the figure's curves at, above, or below the hip and breaks into fluid movement along the hemline.

SKIRT CHARACTERISTICS

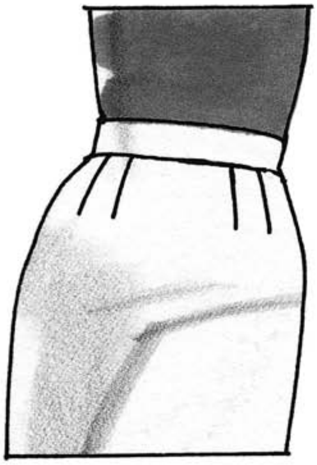
Skirts are described in terms of the following three areas:

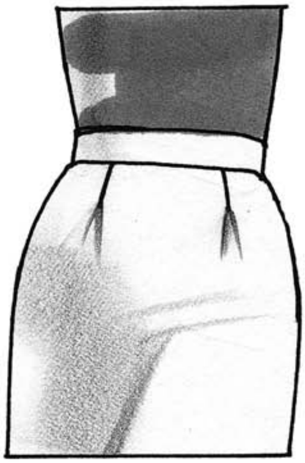
- *The sweep:* the width of the skirt at hemline.
- *Movement:* the way a skirt's fullness reacts to the movement of the body.
- *The break point:* the point at which the skirt breaks away from the body into fluid movement.

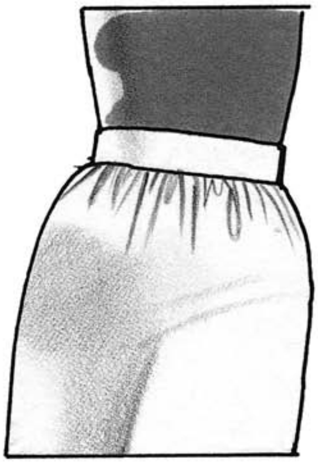


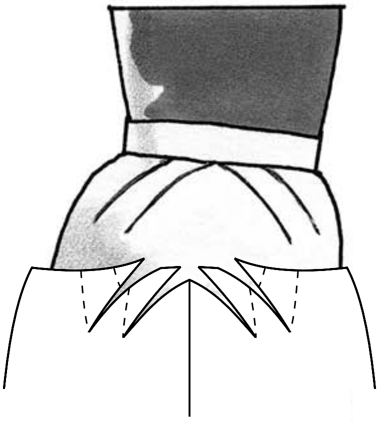
FLEXIBILITY OF SKIRT DARTS

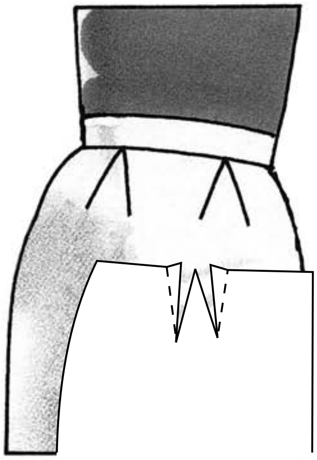
The three groups of designs illustrate the flexibility of the waist dart when the major patternmaking principles are applied. (The second and third groups show completed pattern shapes.) The design variations are provided to encourage further exploration.

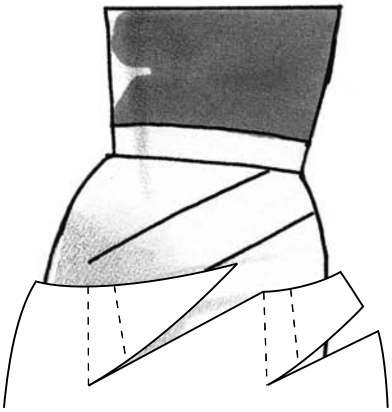

Pleats

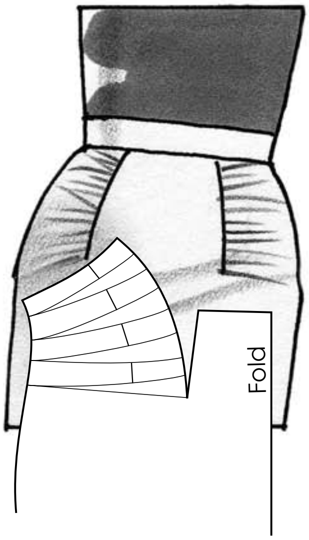

Tuck-darts

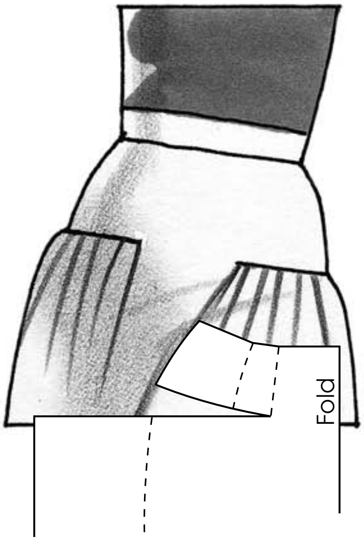

Gathers

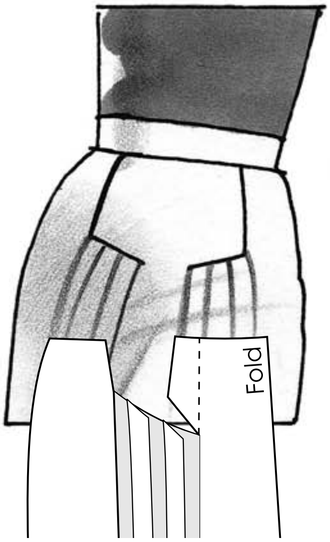

Curved darts


Radiating darts


Asymmetric darts


Added fullness


Side darts


Stylized darts

LOW-WAIST SKIRTS

Design Analysis

The basic skirt is the foundation for this project. The low waist is 3 inches below the natural waist but can be at any depth. Create your own design based on this foundation.

Pattern Plot and Manipulation

Figure 1

- Trace the back and front skirt to length and hem. Extend center back 3/4 inch.
- Draw parallel lines 2 1/2 to 3 inches below waist.
- Trim 1/4 inch from side seams and blend (broken lined area is cut away after side and waist seams are added).

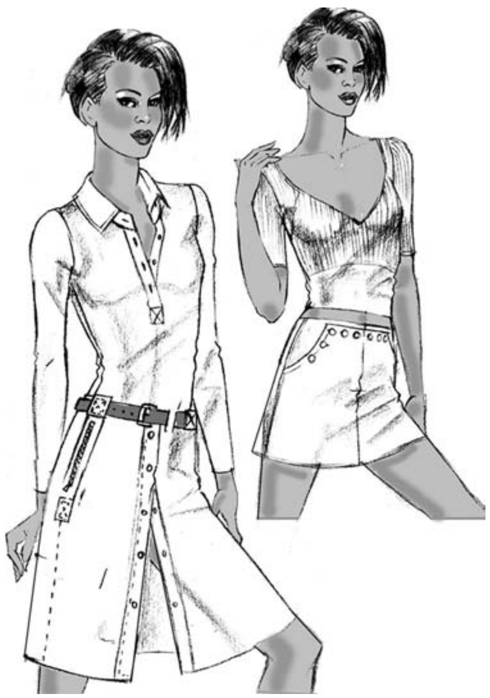
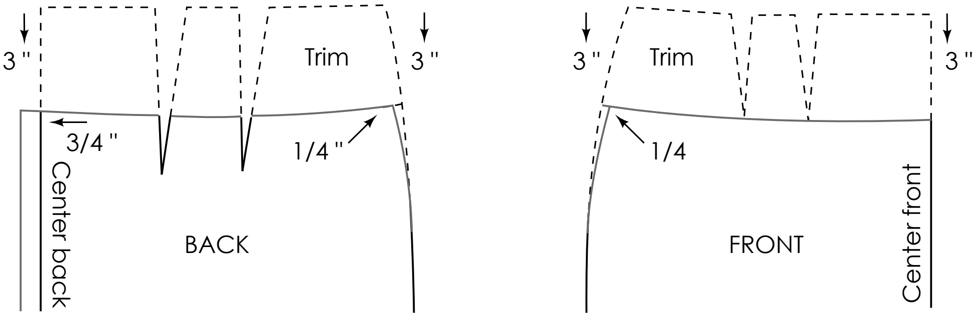

Design 1
Design 2

Figure 1


3"
3"
Trim
3/4"
1/4"
Center back
BACK
3"
Trim
3"
1/4
FRONT
Center front

Figures 2a, b

- *Seams:* Add 1/2-inch seams, 1/4 inch at the new waist, hem 1 inch.
- Cut the skirts from the paper.
- *Facings:* Draw parallel lines 2 1/2 inches below the lowered waistline. Place paper underneath the patterns and trace the facing (shaded areas). Remove paper and cut the facing patterns.

Figures 2c, d

- Close darts at the back pattern. Tape and blend.

Figure 2c

- Front facing (unfolded).

Figure 2d

- Complete the patterns.
- Cut for a test fit.

Figure 2a

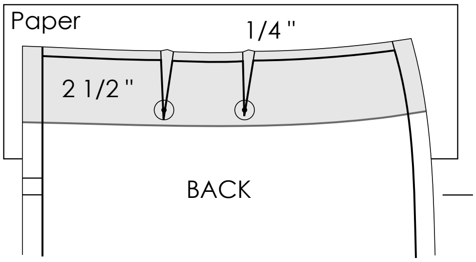

Paper
1/4"
2 1/2"
BACK
1/2"

Figure 2b

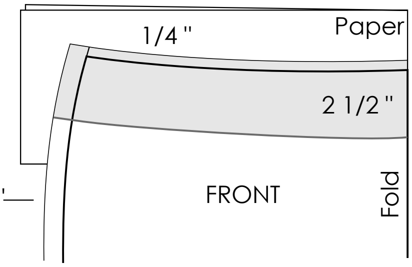

1/4"
Paper
2 1/2"
FRONT
Fold

Figure 2c

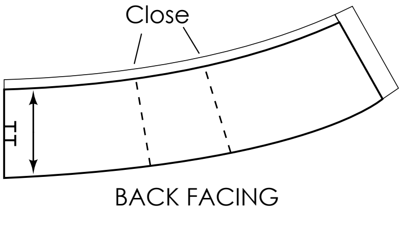
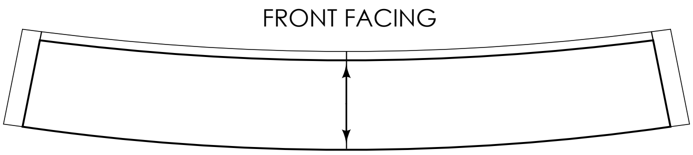
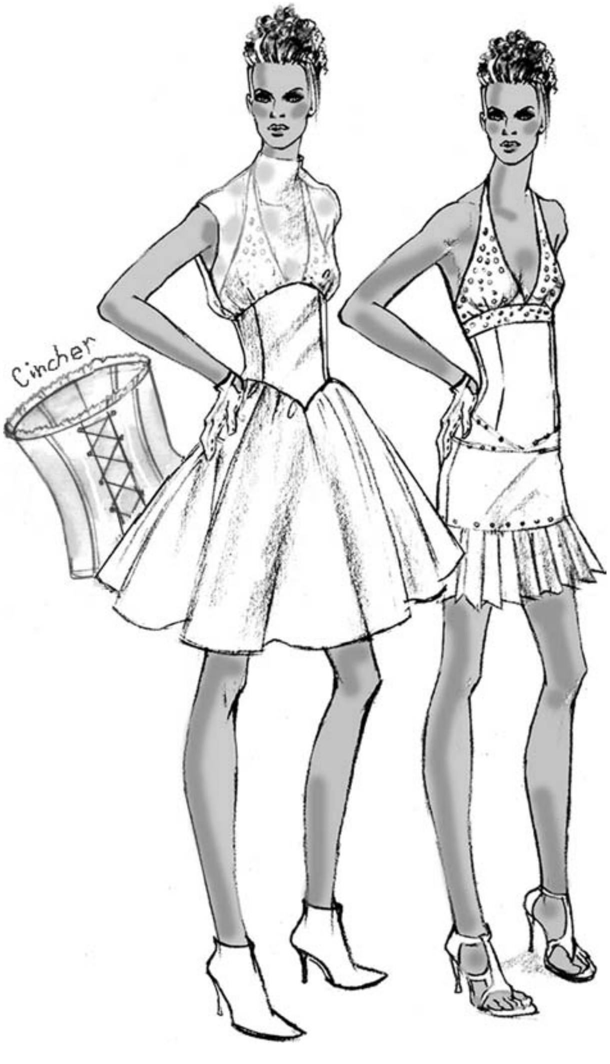

Close
BACK FACING

Figure 2d


FRONT FACING

HIGH-WAIST SKIRTS

The skirt design extends at varying heights above the natural waistline. The skirt foundation is very versatile and can be designed as a torso with pleats, flare, or flared gore panels. It can also be used as a base for developing the waist cincher (waspie) to be worn over other garments by raising height above waist.



Preparing the Skirt

Figure 1

- Trace and extend center lines 2 1/2 inches. Label A.
- Flip patterns, upward aligning with the centers and side seams touching. Draw 2 inches of the side seams. Label B.
- Draw a line from A to B.
- Draw vertical lines centered between the dart legs and parallel with the center back and front.

Figure 1

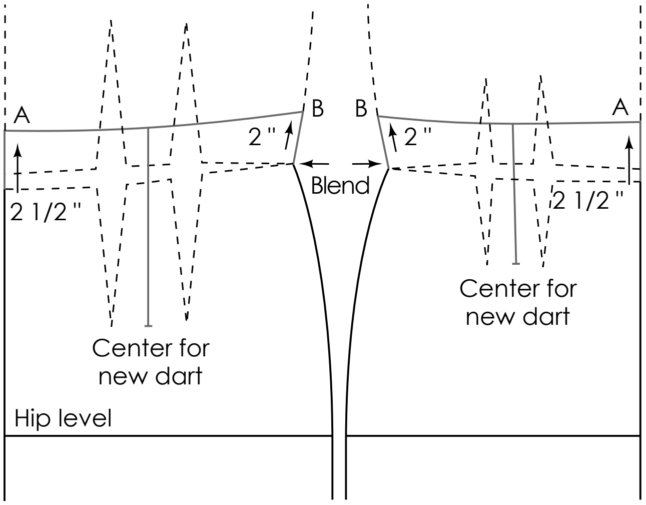
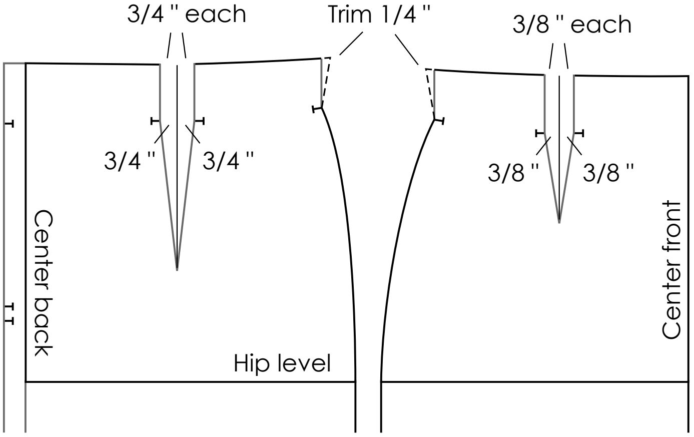

A
B
B
A
2"
2"
Blend
2 1/2"
2 1/2"
Center for new dart
Center for new dart
Hip level

Figure 2 Darts

- Follow measurements for dart intake.
- Draw dart legs to waist and to dart points.
- Add 3/4-inch extension at center back.
- Trim 1/4 inch from the side seams.

Figure 2


3/4" each
Trim 1/4"
3/8" each
3/4"
3/4"
3/8"
3/8"
Center back
Hip level
Center front

Figures 3a, b Facing

- Place paper underneath. Trace 1/2 inch past waist marks (shaded areas in Figure 3a).
- Cut the facing parts, close darts, and tape.
- Trace the facing patterns and add seams; see Figure 4 instruction. Cut from paper (Figure 3b).

Figure 3a

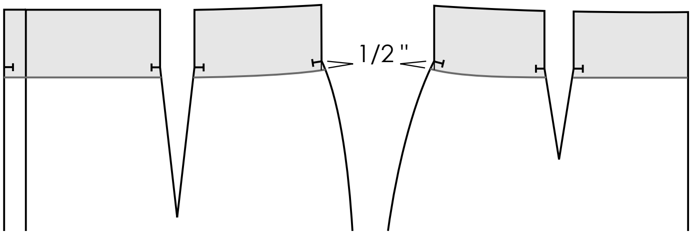


Figure 3b

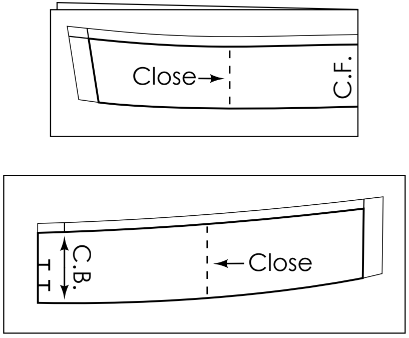


Figure 4

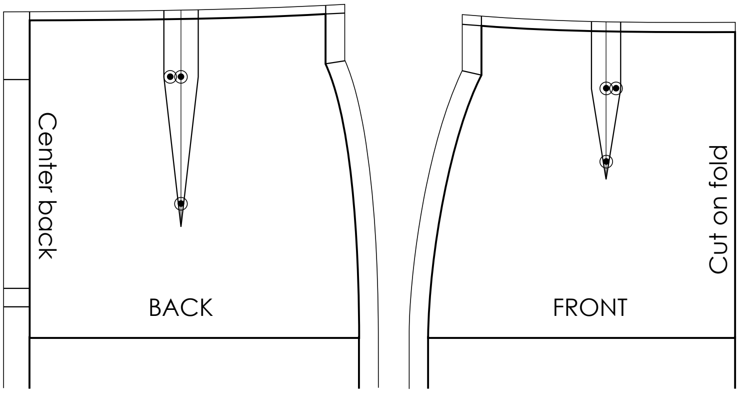


Figure 4 Completing the Pattern

- Add 1/2 inch to all seams except 1/4 inch to the top edge and 1 inch to hem.
- Put punch/circles at the darts.
- Complete the pattern information.

PREPARING ZIPPER AND WAISTBAND

Overlock or zigzag raw seams. To avoid stitching past the slider/pull tab, begin with the zipper open. Stitch a short distance; then close the zipper and continue sewing. Pin or baste to hold zipper in place, if necessary. After the zipper is attached, stitch the skirt; then stitch the waistband.

Figure 1 Stitching a Lapped Zipper

- Stitch center back seam from hem to zipper notch and back stitch.
- Press the seam open.
- On right side of the fabric, place the "top stop" of the back zipper 5/8 inch below waist, aligning zipper teeth with the center notch.
- Stitch 1/16 inch from the teeth to allow the slider clear passage and stitch along the zipper edge.

Figure 2 Edge Stitch

- Turn zipper to right side and edge stitch.

Figure 1

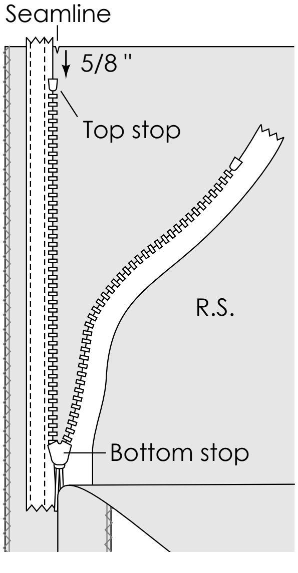


Figure 2

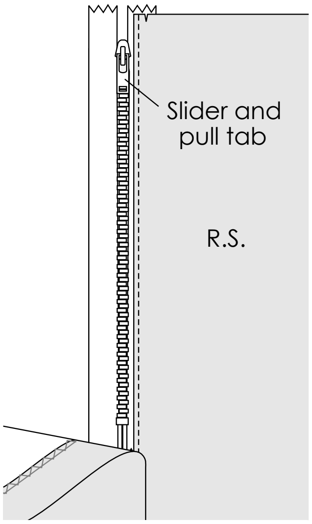


Figure 3 Lap Side

- With fabric facing right side and seam unfolded, pin zipper's "top stop" 5/8 inch below waist and the teeth of the zipper 1/4 inch from center notch. Hold in place while stitching 1/16 inch from the zipper's teeth and stitch along the edge.

Figure 4 Stitching the Lap Seam

- Turn the skirt to the right side and close the zipper.
- Place the folded lap seam and match the center notch of the left skirt.
- Pin (or baste) in place and indicate where the bottom zipper stop ends. Stitch 5/8 to 3/4 inch parallel to the fold line. Turn and stitch across 1/4 inch below the zipper stop. Back stitch.

Figure 3

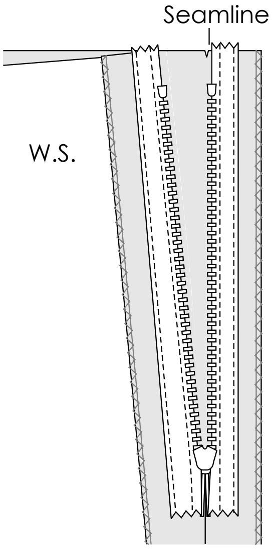
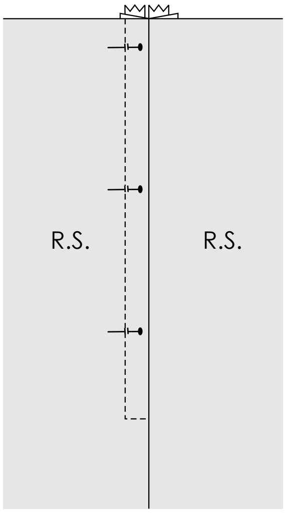


Figure 4



BASIC WAISTBAND

Waistband length—1/2 inch less than waist measurement of the skirt. Record _______.

Extension—1 inch added to the waistband length for the button or buttonhole

Width—2 1/2 inches (finishes 1 1/4 inches)

Figure 1

- Fold paper lengthwise.
- A–B = 1 1/4 inches
- B–C = waistband length
- C–D = 1 inch
- B–E = to match side seams

Figure 1

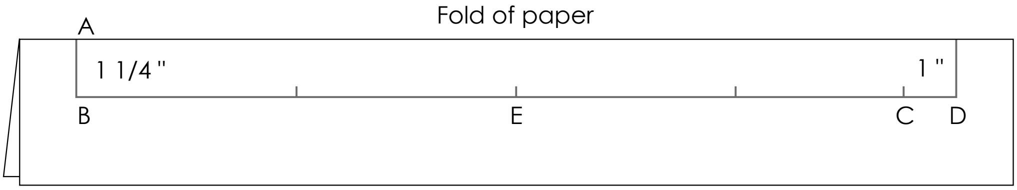
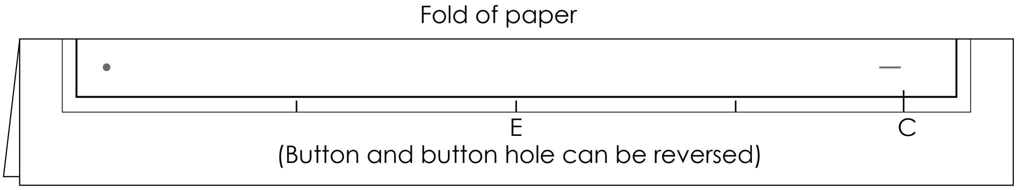


Figure 2

- Seams—1/2 inch
- Notch at E and C.
- Mark button/buttonhole 3/4 inch up from stitchline.

Figure 2

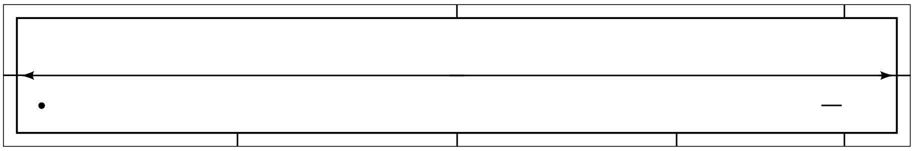


(Button and button hole can be reversed)

Figure 3

- Completed waistband.
- Draw grainline.

Figure 3



Stitching Guide

Fuse interfacing to the fold line of the waistband.

Figures 1a, b Preparing the Waistband

- Fold waistband with right sides facing. Stitch/back-stitch the extension. Stitch/back-stitch at the other end to within 1/2 inch of waistband edge (Figure 1a).
- Turn right side out and press (Figure 1b).

Figure 1a

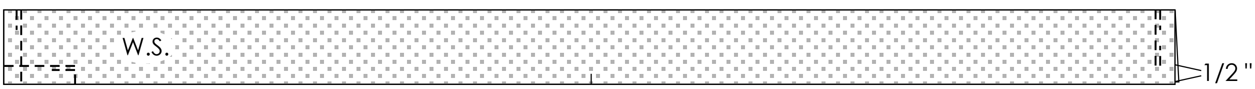
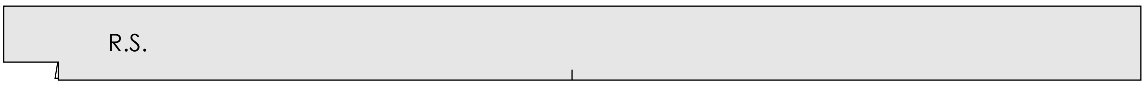


Figure 1b



Figures 2a, b Attaching the Waistband

- With right sides facing, pin the waistband around the waistline, matching the center notches (Figure 2a).
- Stitch/back-stitch the waistband at each end (Figure 2b).

Figure 2a

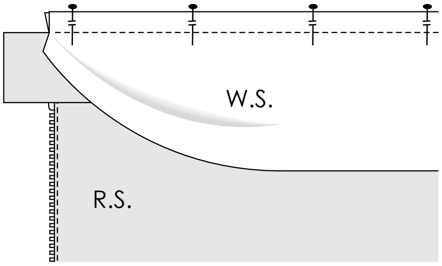
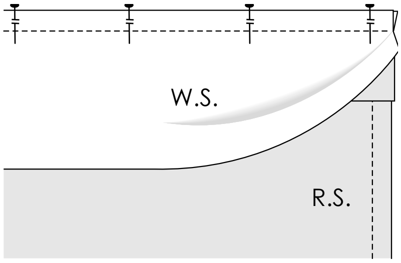


Figure 2b



Figures 3a, b Stitch-in-the-Ditch

- Fold the waistband and pin (Figure 3a).
- Stitch-in-the-ditch on right side to catch the back waistband (Figure 3b).

Figure 3a

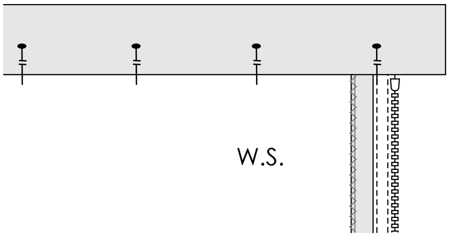


Figure 3b

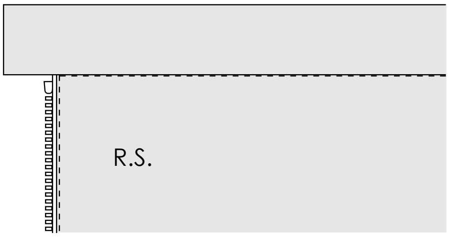
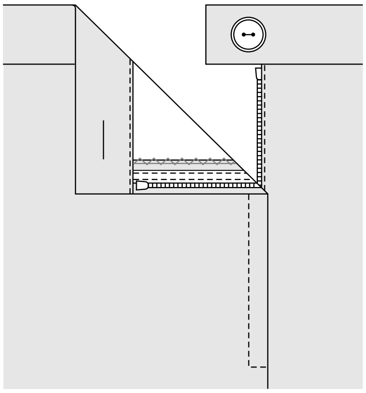


Figure 4 Button/Buttonhole

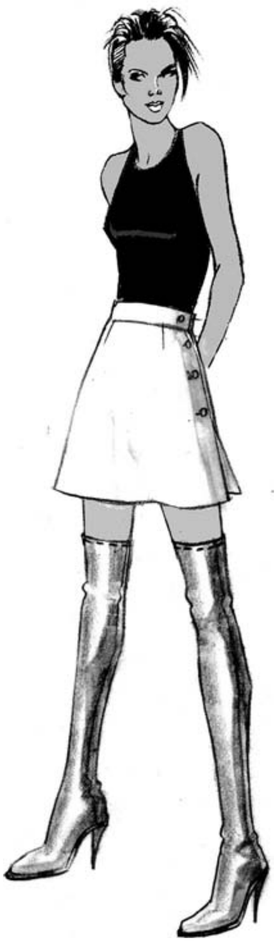
- Place the buttonhole and button 3/4 inch from the ends of the waistband.

Figure 4



FLARED SKIRTS

The flared skirt series applies Principle #1, Dart Manipulation (dart excess transferred to the hemline) and Principle #2, Added Fullness, to increase the sweep of the hemline. Flared skirts have a triangular silhouette.



A-Line Flared Skirt

Design Analysis

The A-line silhouette is one in which the hemline measures greater than the hip circumference. It is achieved by transferring the excess of one dart to the hemline and by adding width at the side seam. The result is a more rounded effect along the hemline that provides additional stride room.

Pattern Plot and Manipulation

Figures 1, 2

- Trace front and back basic skirt to preferred length and hem allowance.
- Draw slash lines from the dart points (nearest side seams) to hemline and parallel with center lines. Label A, B and C, D.
- Cut from the paper.
- Cut to, not through, dart points.
- Place on the paper.

Figure 1

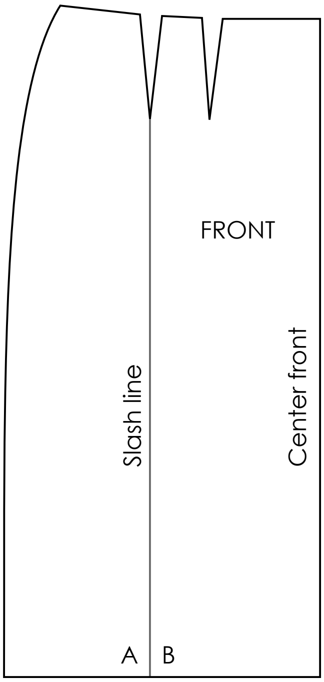


Figure 2

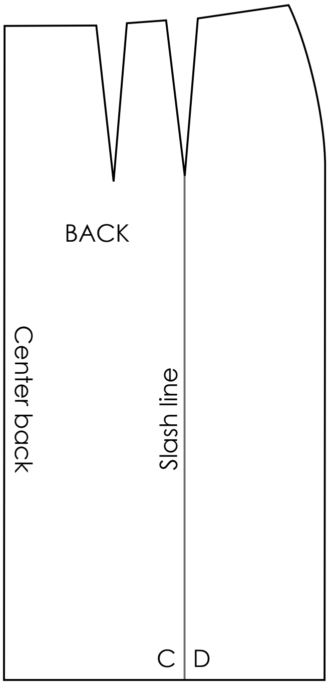


Figure 3 Front

- Close dart and trace pattern.
- Label flare at hem A and B.

A-Line Silhouette

- Label side seam at hem X.
- X–Y = one-half of A–B space. Mark.
- Draw a line from Y to the outermost part of the hipline. Where lines intersect, label Z.
- Z–Y = Z–X length. Square in from Y just past X.
- Draw blending line along hem.

Figure 4 Back

- Transfer just enough excess from waist dart to hemline so that space C–D equals A–B space of front skirt. Remaining dart excess is taken up equally on each side by the other dart (broken lines = original dart leg).
- Trace, adding to side seam using X, Y, Z instructions (Figure 3).
- Before completing the patterns, make one set seamless for manipulation and a seamed pattern set for the design garment. Choose the type of skirt desired from Fig. 5 list.

Figure 3

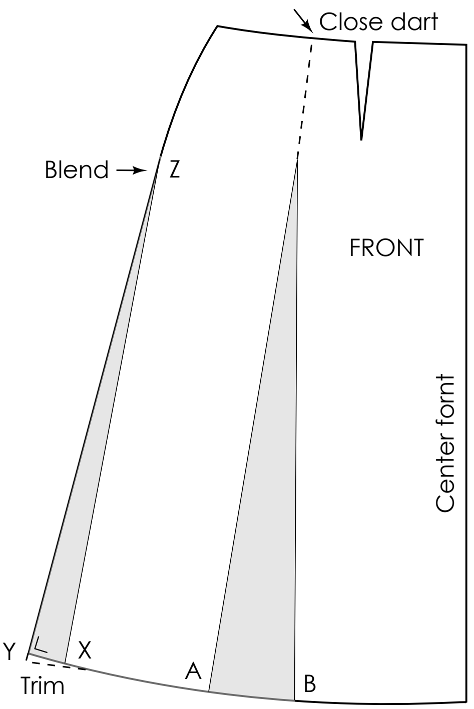

Close dart
Blend
Z
FRONT
Center font
Y
X
Trim
A
B

Figure 4

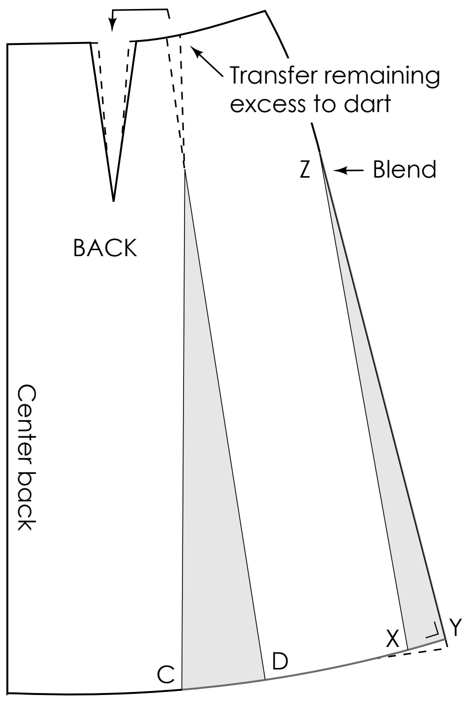

Transfer remaining excess to dart
BACK
Z
Blend
Center back
X
Y
C
D

Figure 5

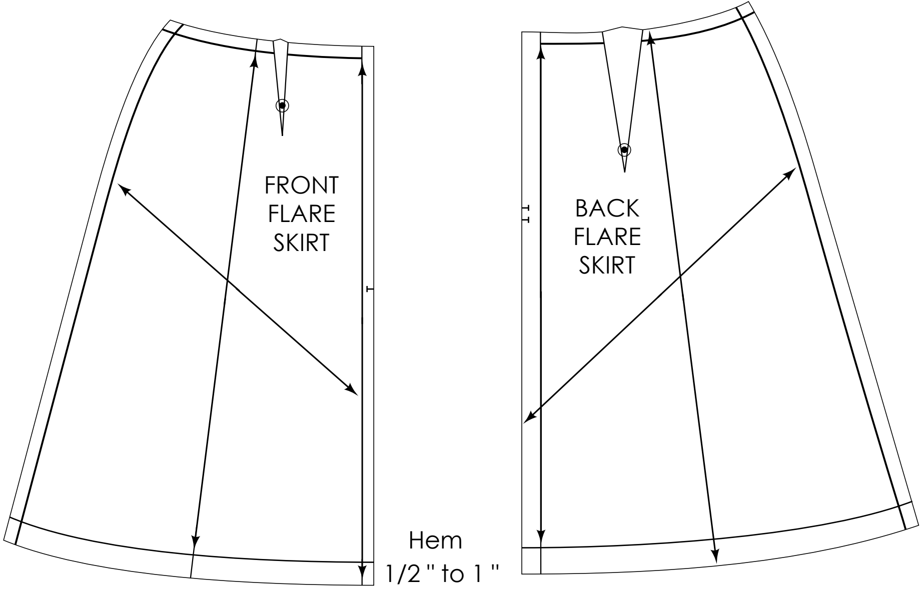
Choices for type of skirt desired.

1. Front and back skirt cut on fold.
2. Front skirt cut on fold and back skirt seamed.
3. Center back and front skirt seamed, creating a 4-gore skirt. See Figure 5.

Draw grainline, add notches and complete for a test fit.

- For instruction on the effects that the grainline has on flare placement. See the section entitled Grainline Placement Relative to the Fall of the Flare later in this chapter.

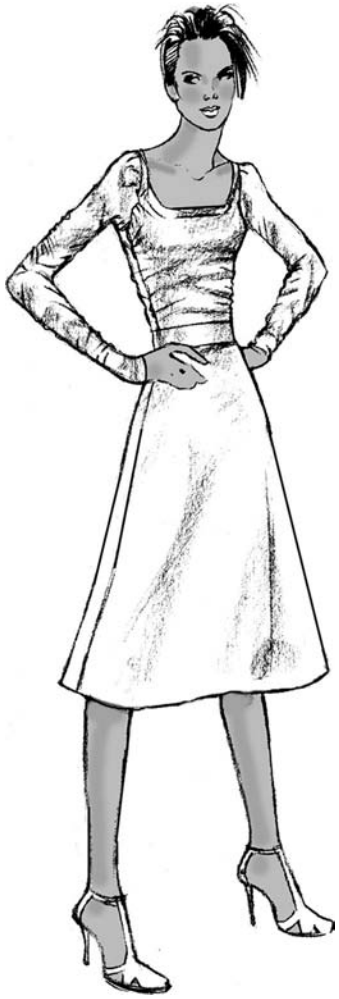
Figure 5


FRONT FLARE SKIRT
BACK FLARE SKIRT
Hem
1/2" to 1"

Basic Flared Skirt

Design Analysis

A flared skirt has more sweep along its hemline than does the basic A-line skirt. All of the dart's excess is transferred to the hemline to increase flare. The dart intake of the back skirt is greater than the front and may cause the hemline sweep from front to back to differ. If this difference is not equalized, the bias of the side seams will hang unequally. The longer length will be eased in by the operator, causing the seamline to twist and curl. To correct the problem, see Figure 5 on the next page. Two flare methods are given: slash-spread as follows, and pivotal-transfer using the one-dart skirt foundation on the subsequent page.



Pattern Plot and Manipulation

Figures 1, 2

- Trace front and back skirts.
- Draw lines from dart points to hemlines parallel with center lines.

Figure 1

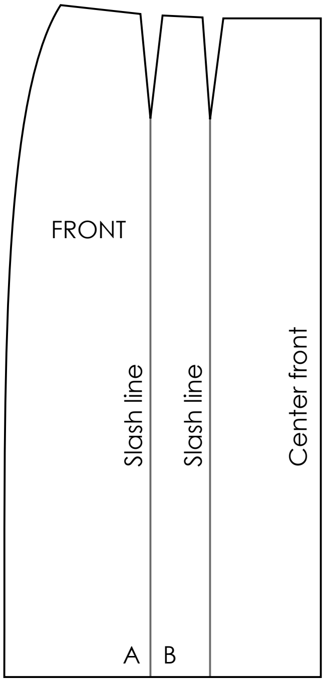
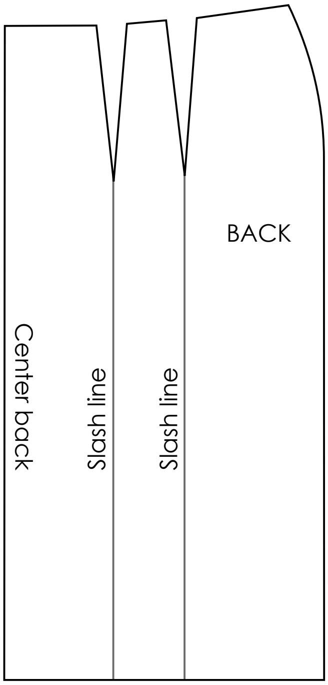


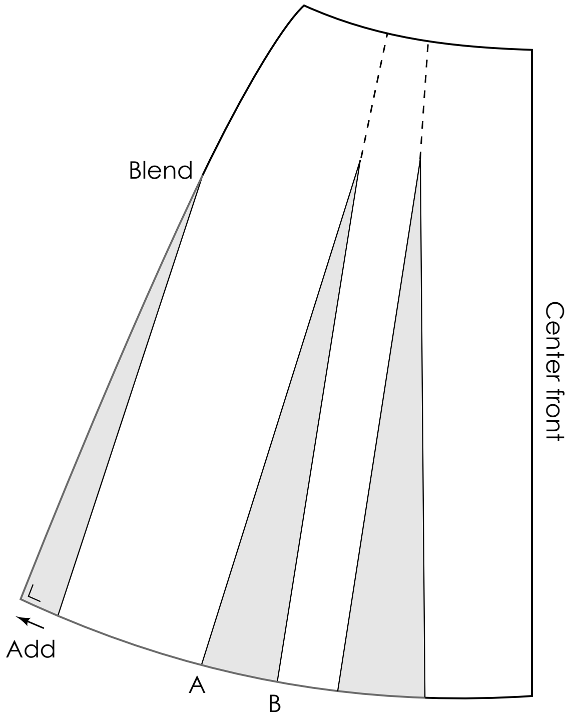
Figure 2



Figures 3, 4

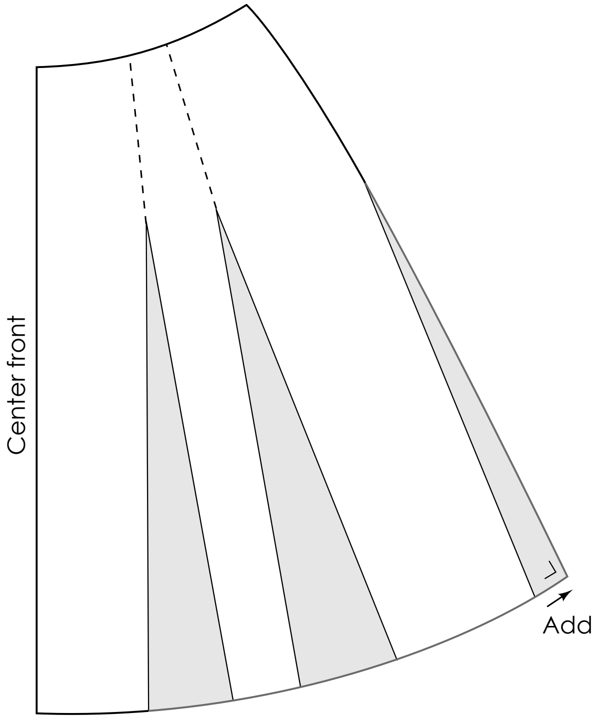
- Cut slash lines to, not through, dart points.
- Close darts. Tape.
- Trace patterns.
- Establish front and back A-shape at side, using one-half of the A–B space and instructions given for basic A-line skirt for blending hemline (see Figures 3 and 4 two pages back).
- Blend across hemline, as shown.
- Cut out front only to adjust side seams. Add 1/2- to 3/4-inch hem. Add remaining seams.

Figure 3



Blend
Center front
Add
A
B

Figure 4

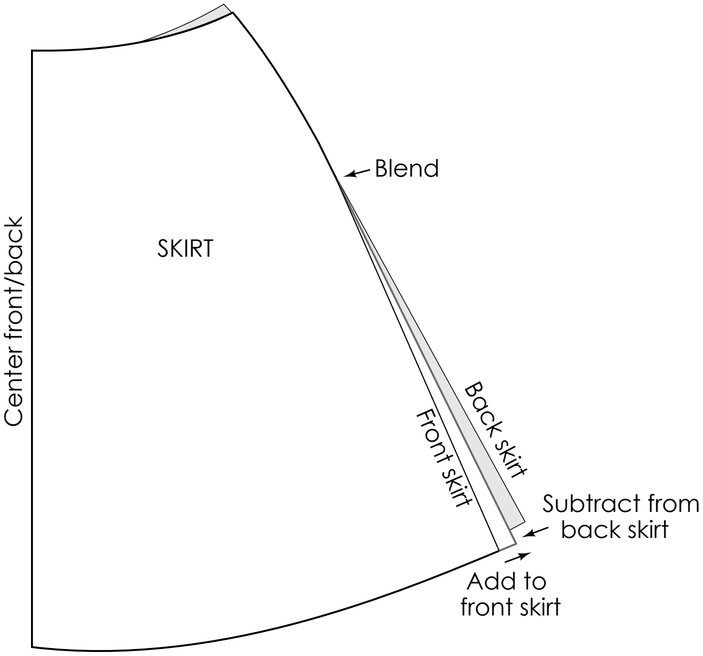


Center front
Add

Figure 5 Balancing the Side Seam

- Place front on top of back pattern, matching center lines.
- Measure and divide the difference between the front and back skirt at the side hems.
- Add one-half of this amount to the front and remove one-half from the back (shaded section).
- Blend side seams to hipline.
- Add 1/2- to 3/4-inch hem allowance. Add remaining seams.
- Cut the back skirt from paper. Draw a grainline and complete for test fit.

Figure 5



Blend
SKIRT
Center front/back
Back skirt
Front skirt
Subtract from back skirt
Add to front skirt

One-Dart Skirt Foundation

The one-dart skirt foundation has two functions: to develop flare skirts with a nearly equal hemline sweep and to create skirts that cling to the hipline by transferring the dart excess below the dart points. To develop the pattern, the basic skirt is modified.

The example is a guide. Use your own measurements:

- Add dart intake of the front and back together. Front darts = 1″; back darts = 2″; total = 3″.
- Divide in half = 1 1/2″ (intake for each dart).

Figures 1, 2

- Trace front and back patterns, disregarding dart legs (broken lines). Mark between darts at waist. Draw guidelines from marks to hemline, parallel with center lines.
- Measure down 4 1/2 inches from front and back waist on guideline and crossmark for dart point.
- Measure out 3/4 inch (personal measurement may vary) from each side of guideline at waist. Mark and connect with dart point.
- Measure down on guideline from dart point, making a series of four marks spaced 1 1/2 inches apart. Marks represent future pivotal points for developing true bias-cut slinky skirts that cling.

Figure 1

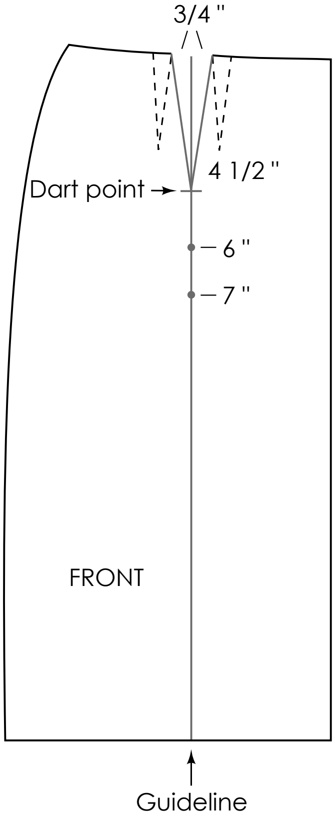
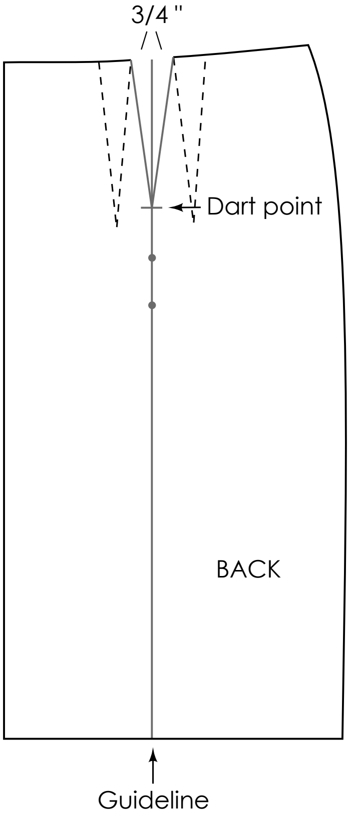


Figure 2



Flared Skirt Based on One-Dart Pattern

Pattern Plot and Manipulation

Figure 1

- Trace front one-dart skirt pattern from A to C.
- Crossmark at A on paper.

Figure 1

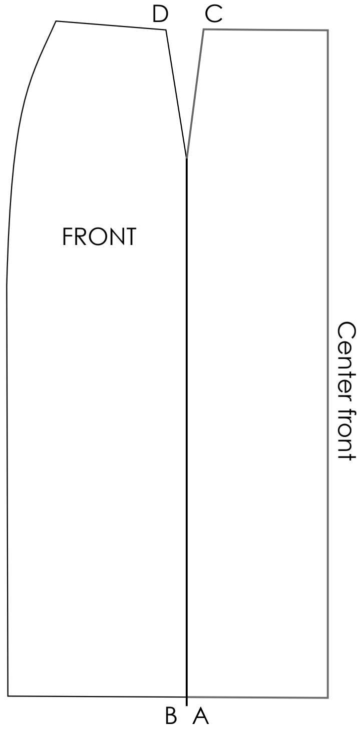

D
C
FRONT
Center front
B
A

Figure 3

- Add to side seam using one-half of A–B space and follow A-line instructions for blending hemline (see Flared Skirts section, Figures 3 and 4, earlier in this chapter). Mark choice of grainlines as shown. (Choice of grainline affects the hang of flared skirt. See section entitled Grainline Placement Relative to the Fall of the Flare later in this chapter.)
- Repeat instructions to develop skirt back.
- Add seams following the example in the Flared Skirts section earlier in this chapter.

Figure 2

- With push pin at dart point, bring dart leg D to C.
- Trace from D to B. Crossmark and remove pattern.

Figure 2

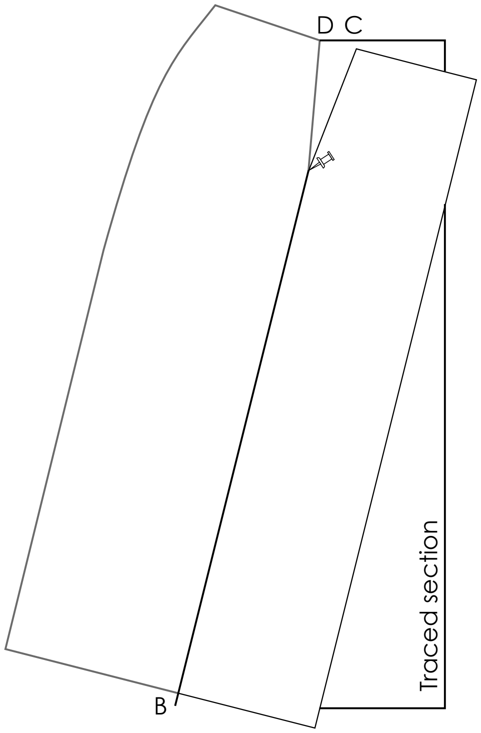
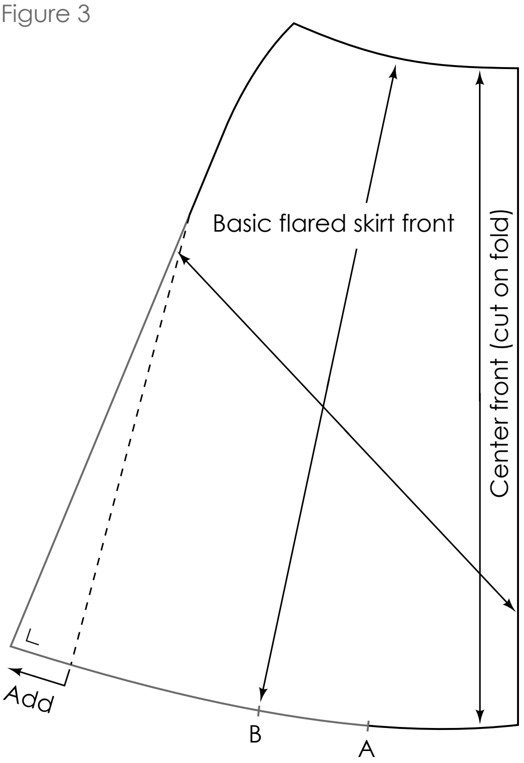

D C
Traced section
B

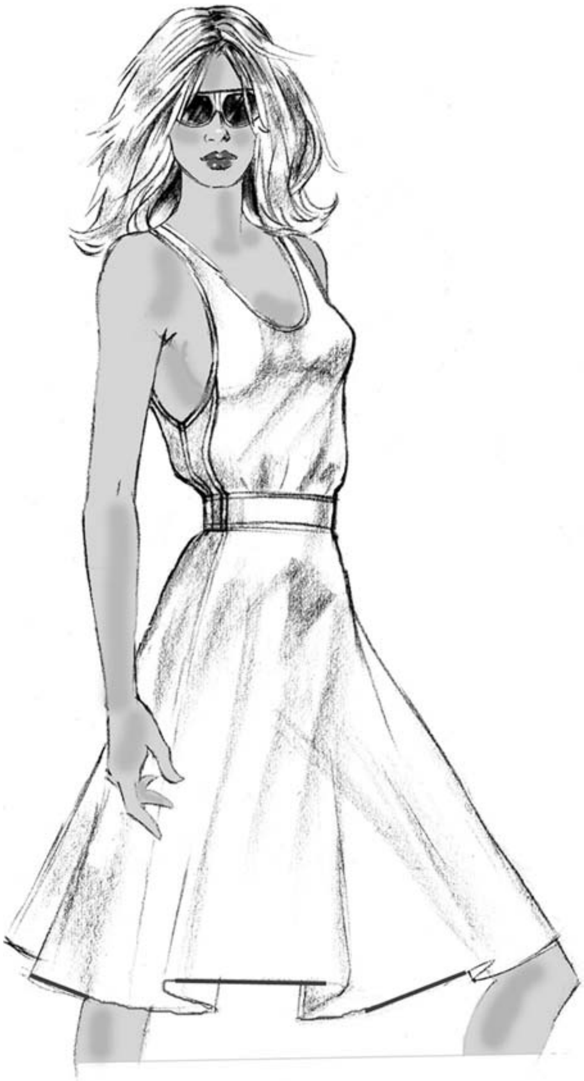
Figure 3


Basic flared skirt front
Center front (cut on fold)
Add
B
A

Added Flare Skirt

Design Analysis

The hemline sweep may be increased by adding additional flare within the pattern's frame and to the side seams (for balance). The skirt will have more sweep than the basic flared skirt. Long skirts with great sweeping hemlines are often wider than the fabric. A separate pattern should be made for the section that extends beyond the fabric. Skirts with added flare may be developed from either the basic one-dart or two-dart skirt or from the Radius Circle Chart found later in this chapter. The one-dart pattern is illustrated. Add to preferred length and allow 1/2 inch for the hem.



Pattern Plot and Manipulation

Figure 1

- Trace skirt pattern.
- Draw slash lines. Label A and B.

Figure 1

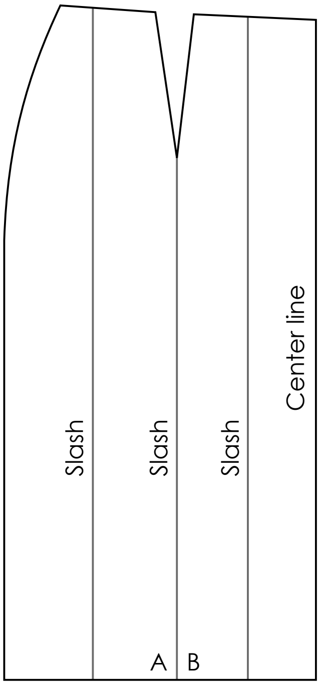
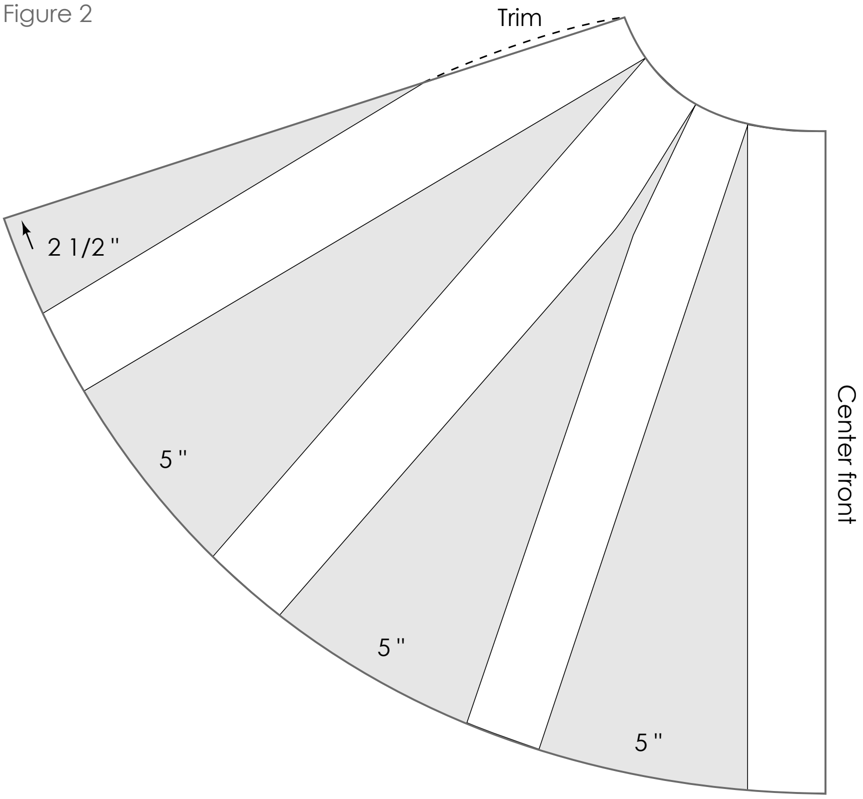


Figure 2

- Cut slash lines to, not through, waistline.
- Place on the paper and spread each section 5 inches or more.
- Trace the outline.
- Add to side seams and blend hemline; draw a straight line from hemline to waistline. (Broken line indicates the hipline curve no longer needed when sufficient fullness is added to the skirt.)
- Draw a grainline.
- Repeat the instructions for skirt back.
- Complete the pattern for test fit. Before marking the hemline, hang skirt overnight (allows grain to fall) and mark new hemline. Adjust pattern. See Grainline Placement Relative to the Fall of the Flare section later in this chapter.)

Figure 2



Figures 3, 4 Modifying for Hemline Sweep

- Broken line indicates section of skirt that over hangs the width of fabric.
- Draw selvage line on pattern. Crossmark 1/2 inch for notches.
- Make a separate pattern for section that hangs over selvage, as shown (Figure 4).
- Center line can be placed on crosswise grain to avoid adding this section in some instances.

Figure 4

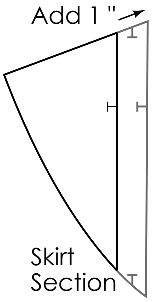
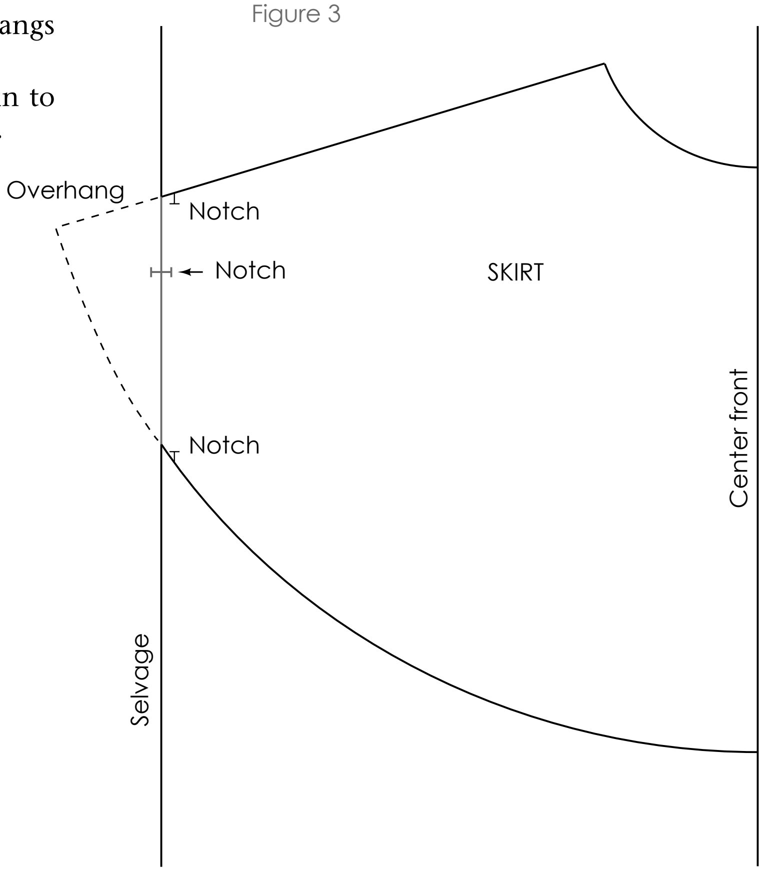


Figure 3



SKIRTS WITH GATHERED WAISTLINES

Two factors should be considered before computing the amount of fullness desired.

1. Fabric weight: Firmly woven fabric limits the amount of gathers that can be stitched into a seam; light-weight fabrics can tolerate greater fullness.
2. Cost: Gathering increases yardage and adds to the cost of the garment.

Computing for Gathers

Figure 1

Start with the finished length of the gathered section (applies to any area of the garment). For example, the waistline is 26 inches. Each inch takes up a proportional amount of the fullness allowed, as follows:

1 1/2 to 1 ratio = 39 inches gathered into 26 inches (inexpensive garments).

2 to 1 ratio = 52 inches gathered into 26 inches (average fullness).

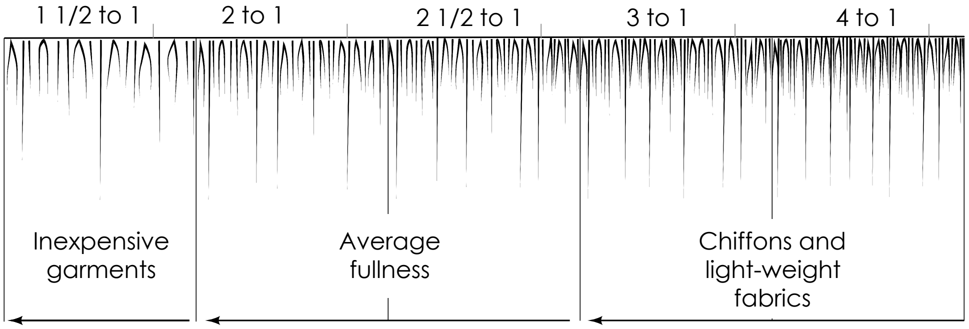
2 1/2 to 1 ratio = 65 inches gathered into 26 inches (moderately priced garments).

3 to 1 ratio = 72 inches gathered into 26 inches (chiffon and light-weight fabrics).

4 to 1 ratio = 104 inches gathered into 26 inches (chiffon and light-weight fabrics).

Gathered skirts are either flared (A-silhouette) or dirndl (rectangular).

Figure 1



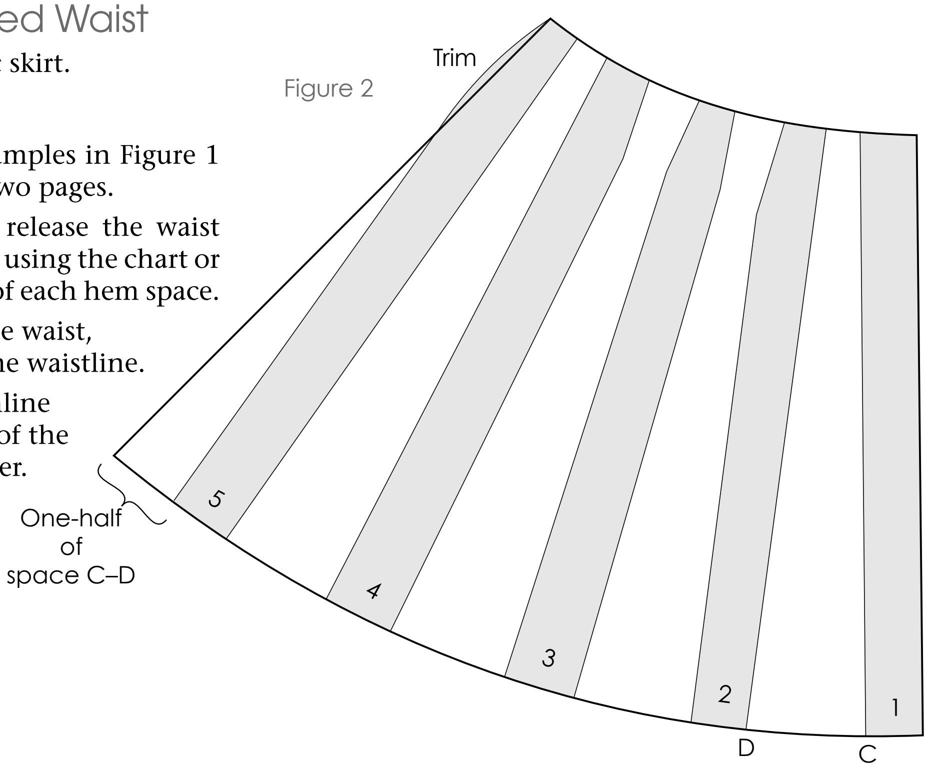
Flared Skirt with Gathered Waist

Use the one-dart or two-dart basic skirt.

Figure 2

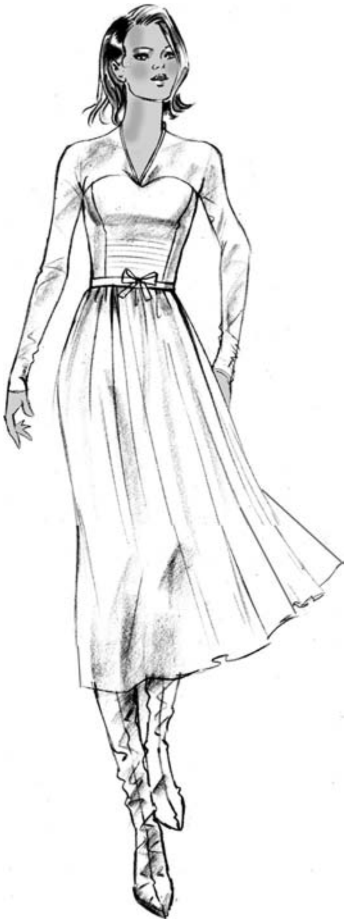
- Prepare the skirt following examples in Figure 1 and Figure 2 on the previous two pages.
- After spreading the hemline, release the waist and spread the amount desired using the chart or by spreading half the amount of each hem space.
- Add flare and draw a line to the waist, trimming the hipline. Blend the waistline.
- For hem adjustment, see Grainline Placement Relative to the Fall of the flare section later in this chapter.

Figure 2



Gathered Dirndl Skirt

Dirndl skirts are rectangular in shape (waist and hemline are of equal measurements). To compute the amount of fullness for gathers, the width of the fabric is considered. Generally, if the fabric is 36 inches wide, 2 widths are cut; if it is 45 inches, 1 1/2 widths are cut. If greater fullness is required, review instructions given in Figure 1 on the previous page.

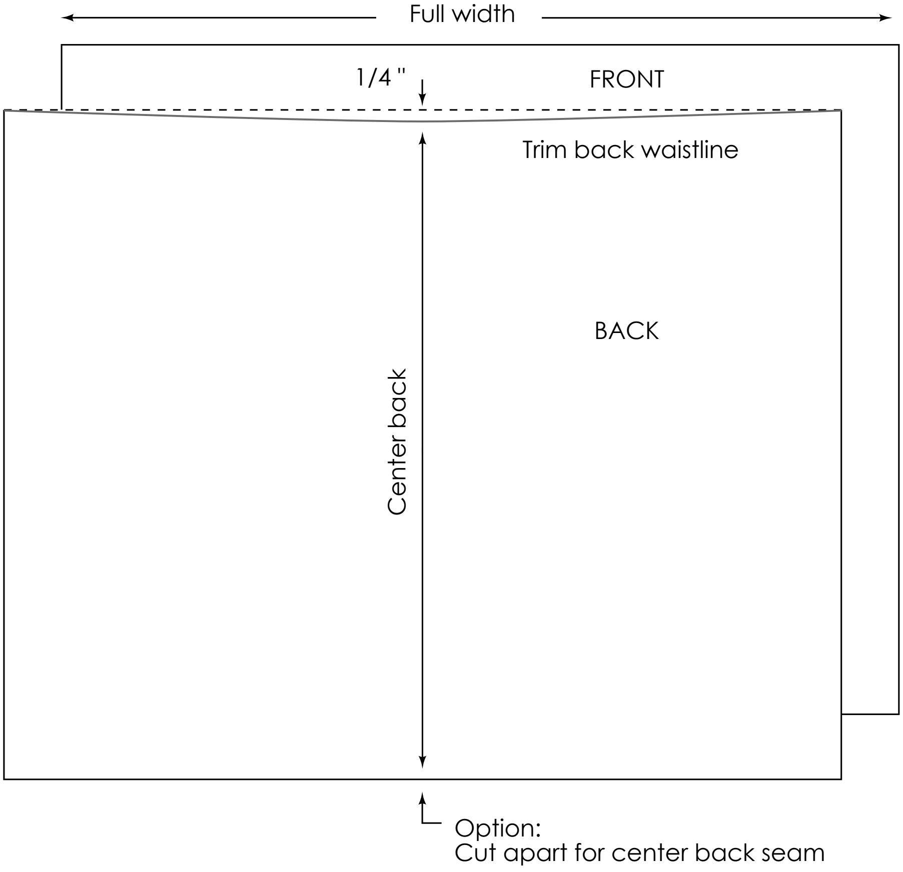


Pattern Plot and Manipulation

Figure 1

- Draw a vertical line on the paper equal to desired length plus 3 inches (hem and waist seam allowance). *Example:* Finished length 26 inches plus 2 inches (1/2 inch at waist and 1 1/2 inches at hem); total 28 inches.
- Square a line out from the top and bottom of the vertical line at each end equal to width of the fabric. Connect lines to complete the panel.
- Cut panel twice for 36-inch fabric and 1 1/2 times for 45-inch fabric (not illustrated). Add more panels if desired.
- Lower center back panel 1/4 inch (broken line). Blend to sides.
- Notch center of panel's width for center front and center back. Notch hem and seams.
- Skirt may have either a side opening for entry or a split panel at center back for seam and zipper.

Figure 1



GORED SKIRTS

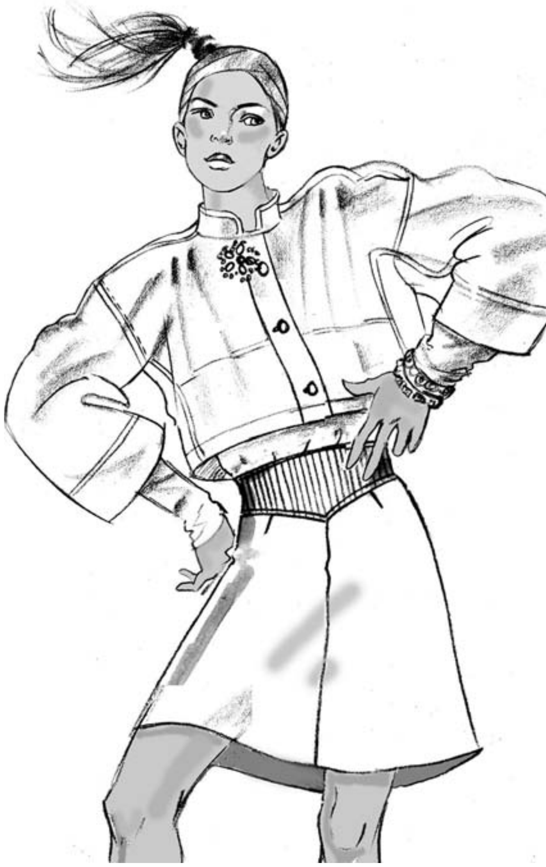
A gore is a skirt panel that tapers toward the waistline. A gored skirt contains any number of gores—from 4 to 12 or more—equally spaced or in clusters, depending on the look desired. The gore may hang straight from hip level, may be flared or pleated, and may break away at any point along the seamline of the gore. This results in a wide variety of silhouettes. It is important to remember that each joining section (gore) must be notched to ensure the correct panels are matched when stitched. Designs 1 through 9 are examples of gore variations.

4-Gore Flared Skirt

Design Analysis

The basic 4-gore skirt is developed from the basic A-line skirt and has an attached basic waistband. (The belt is separate and not part of the waistband.)

Design 1



Pattern Plot and Manipulation

Figures 1, 2

- Trace front and back basic A-line skirt (see Flared Skirts section earlier in this chapter).
- Add seam allowance to center front and back of a 4-gore skirt.
- Cut patterns from the paper and draw straight, bias, and center grainlines (options for future designs).
- Complete pattern for test fit.

Figure 1

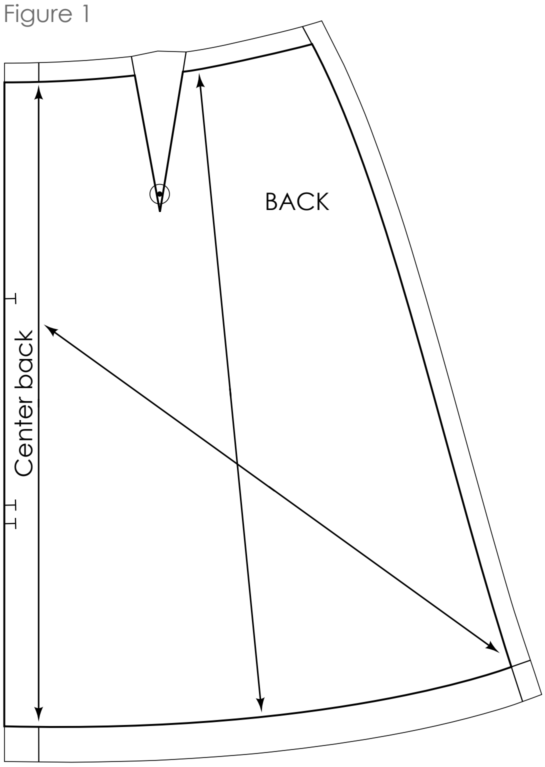
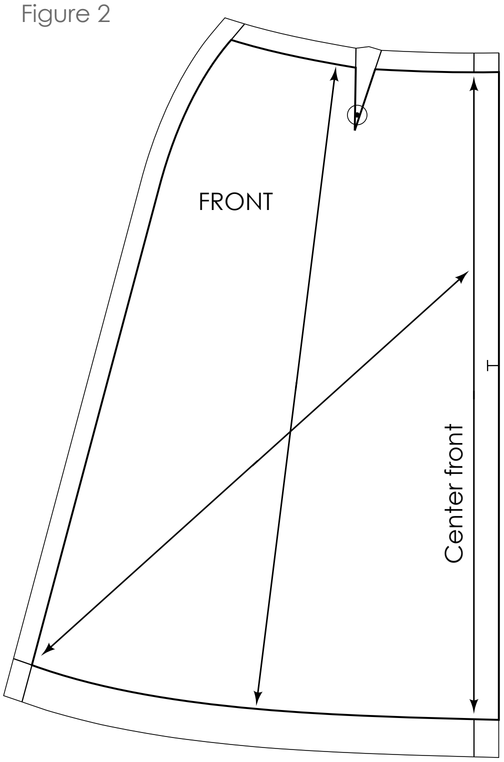


Figure 2



6-Gore and 8-Gore Skirts

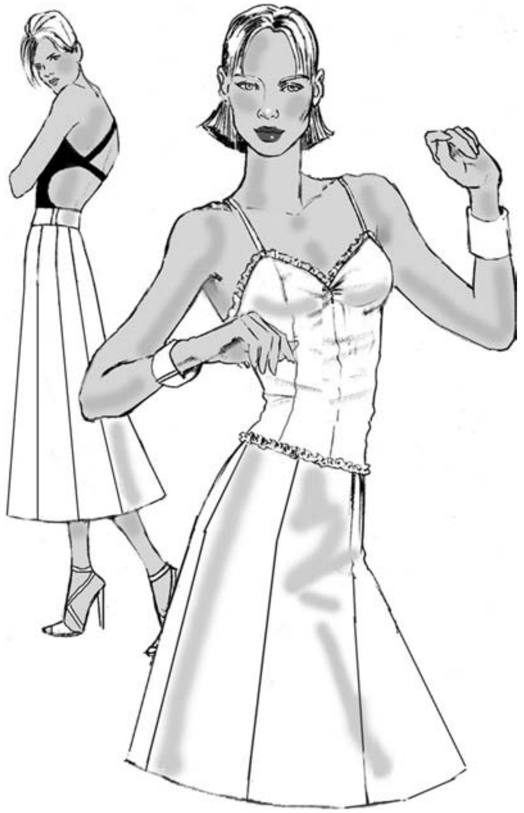
Design Analysis

6-Gore Skirt

The basic 6-gore skirt has three panels in the front and in the back. The center panels are cut on the fold. The zipper can be stitched at the side seam or in the back gore panel.

8-Gore Skirt

To create an 8-gore skirt, add seams at the center front and back of the 6-gore skirt patterns (not illustrated).



Pattern Plot and Manipulation

Figures 1, 2

- Trace the basic front and back skirt.
- Draw gore guidelines from the dart points to the hemline parallel to the center lines. Label guidelines A–B (back skirt) and C–D (front skirt).

Modifying Darts

Broken Lines = Original Darts

Back Darts

- *Reduce* intake of the second dart by 1/2 inch and shorten the length to 4 inches.
- *Increase* the intake of the first dart by 1/2 inch. Draw new dart legs curved slightly outward (Figure 1).

Front Darts

- Eliminate the second dart by moving the excess to the intake of the first dart.
- Draw new dart legs curved slightly outward (Figure 2).

Figure 1

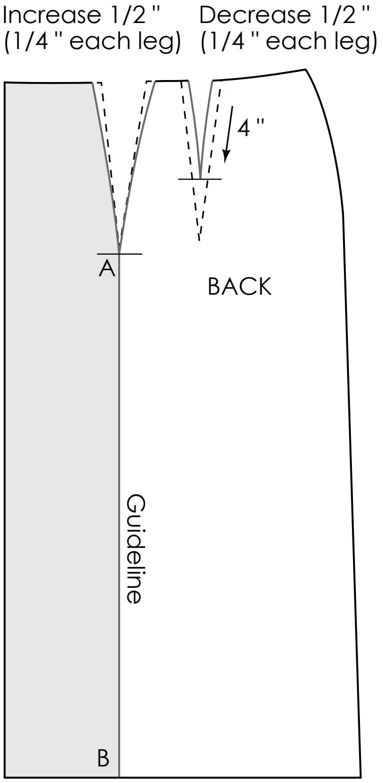
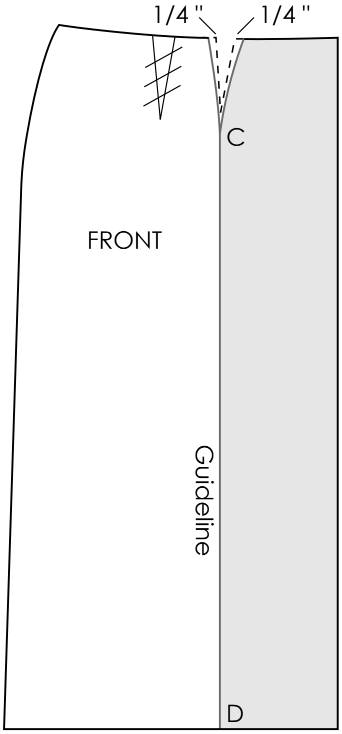


Figure 2



Adding Gore Flare

Figures 3a, b Back Gore Panel

- Mark 2 inches out from the B guideline.
- Place a ruler from A to the 2-inch mark. Draw a line from A to within 1/8 inch of the mark.
- Draw a curved line from the mark, blending to the hemline (shaded area in Figure 3a).
- Place a folded paper behind the pattern aligned with the center. Trace the back gore panel. Remove the paper and set aside.

Side Back Gore Panel

- On the same pattern, mark 2 inches out from the other side of B and side seam (Figure 3b).
- Follow Figure 3a instructions to draw the flare line and hem shape (shaded area in Figure 3b).

Figure 3a

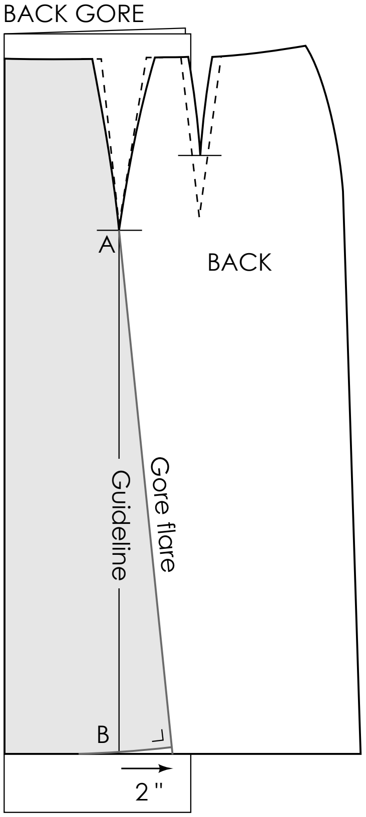
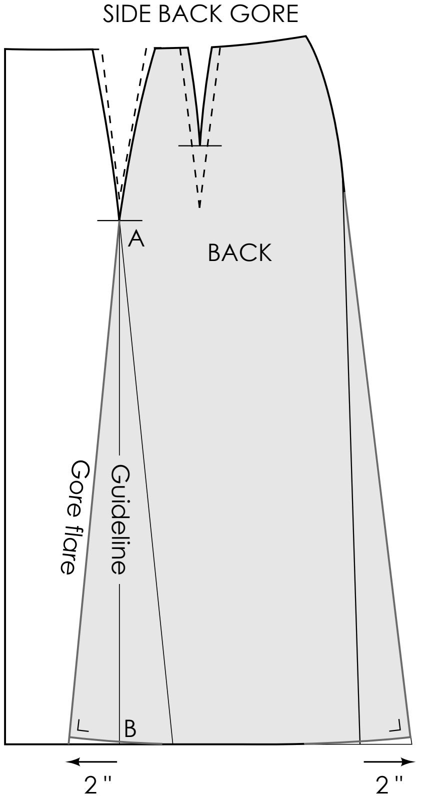

BACK GORE
A
BACK
Guideline
Gore flare
B
2"

Figure 3b


SIDE BACK GORE
A
BACK
Gore flare
Guideline
B
2"
2"

Figures 4c, d Front and Side Front Gore Panels

- Repeat the instructions given in Figures 3a and 3b. Mark the flare from the D guideline.

Figure 4c

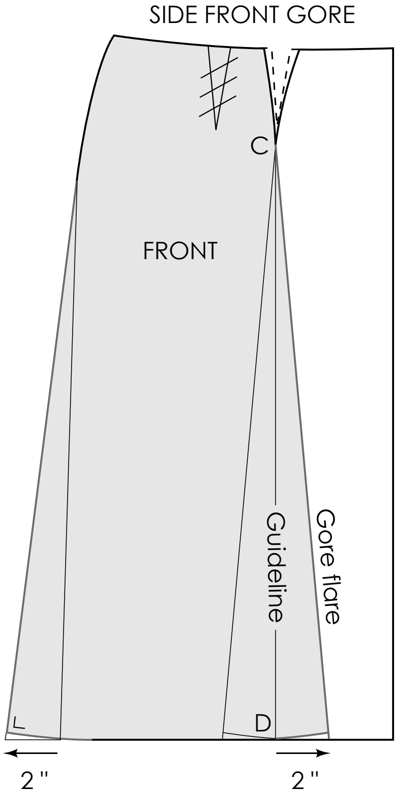
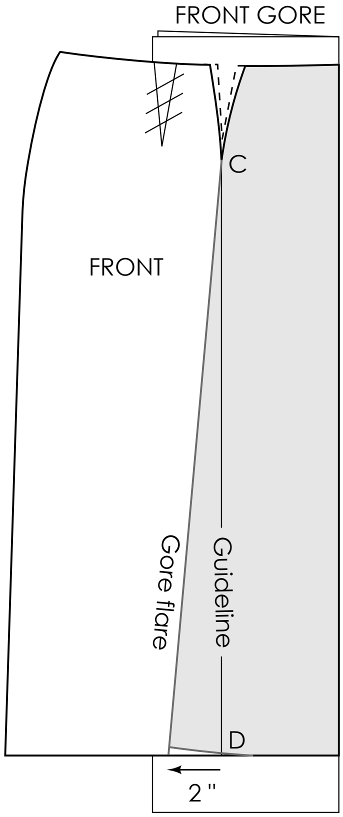

SIDE FRONT GORE
C
FRONT
Guideline
Gore flare
D
2"
2"

Figure 4d


FRONT GORE
C
FRONT
Gore flare
Guideline
D
2"

Separating Gore Panels

Figures 5e, f Front/Back Gore Panels

- Pencil in the perforated marks of the gore panels.
- Add 1/2-inch seams and 1 inch at the hem.
- Cut from the paper and unfold.

Figure 5e

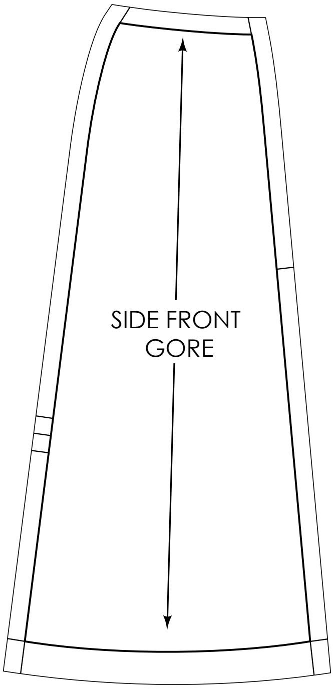
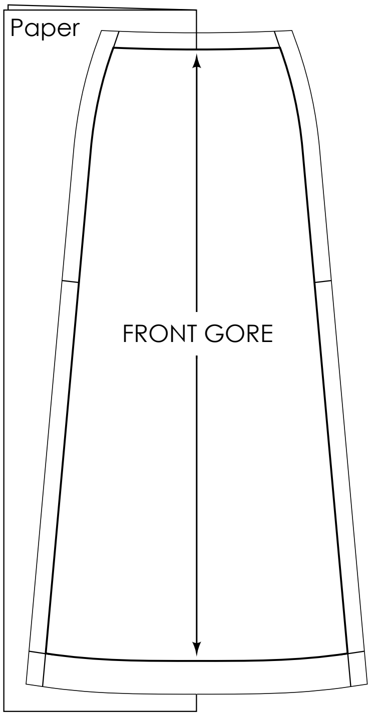


Figure 5f



Figures 6g, h Side Front/Back Gore Panels

- Cut the side panels from the pattern. Trace the patterns.
- Add 1/2-inch seams and 1 inch for the hem.
- Mark punch/circle 1/2 inch up from the dart point of the back pattern (Figure 6h).

Notches

- Mark notches for the seam and hem allowances.
- Mark notches at all joining gore panels, as illustrated.
- Draw grainlines and write pattern information on all patterns. To draft the waistband, refer to the Basic Waistband section earlier in this chapter.

For sewing instructions for the waistband and zipper, refer to the Preparing Zipper and Waistband section earlier in this chapter.

Figure 6g

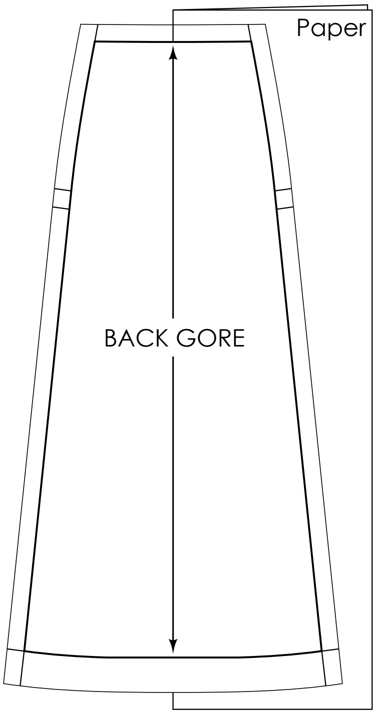
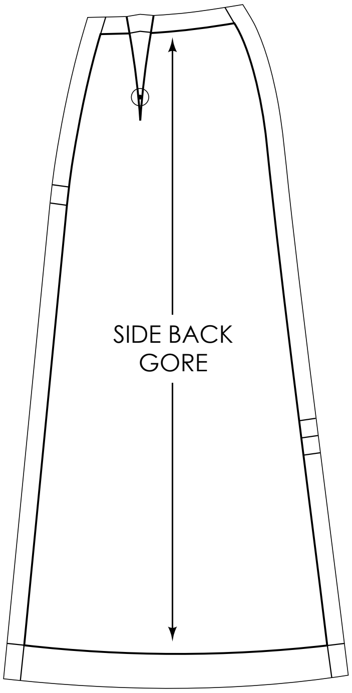


Figure 6h

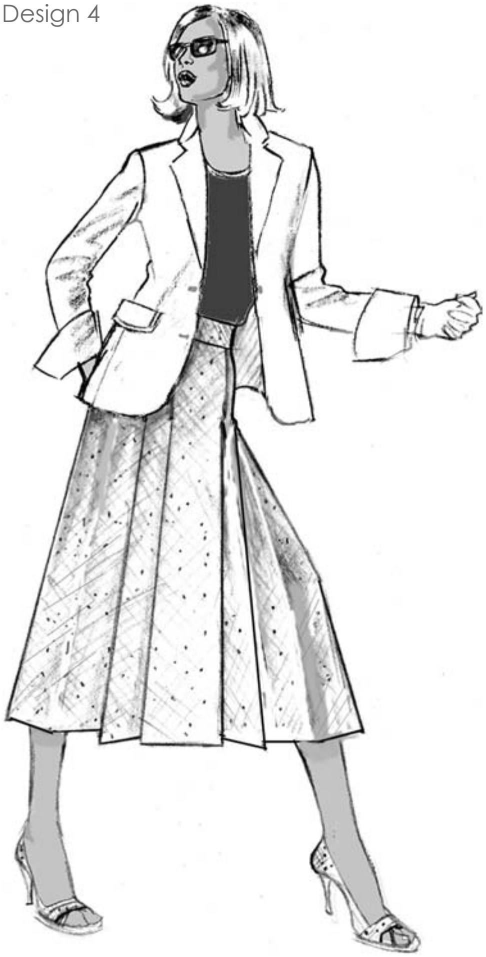


8-Gore Pleated Skirt

Design Analysis

The 8 panels are arranged so that the front panel is wider than the joining panels. All panels have pleats except at the side seams. The example illustrates the flexibility of gores for design variations.

Design 4



Pattern Plot and Manipulation

Figure 1 Front

- Trace basic front and back skirt.
- Measure the distance from dart point to center front.
- Mark hem from center front to equal this measurement, *plus* 1/2 inch. Label A.
- Draw goreline from (A) to dart point. Shift second dart 3/4 inch toward side. (Broken line is original dart location.)
- Draw second goreline from new dart point to hem, parallel with first goreline or at an angle to it. Label B.
- Add 2 inches at side seam of the hem.
- Connect the line to outermost part of hip. Blend hemline using A-line instructions (see section on Flared Skirts, Figures 3 and 4, earlier in this chapter).

Figure 2 Back

- Repeat the process to develop back skirt.
- Mark the gore width (C–D) at hem equal to front gore width (A–B) and shift dart to the goreline.

Figure 1

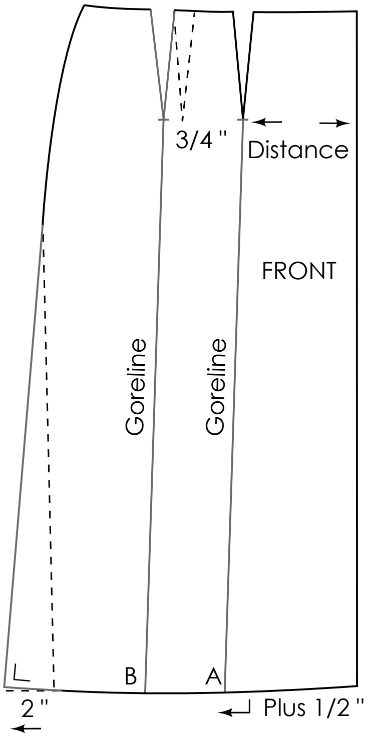
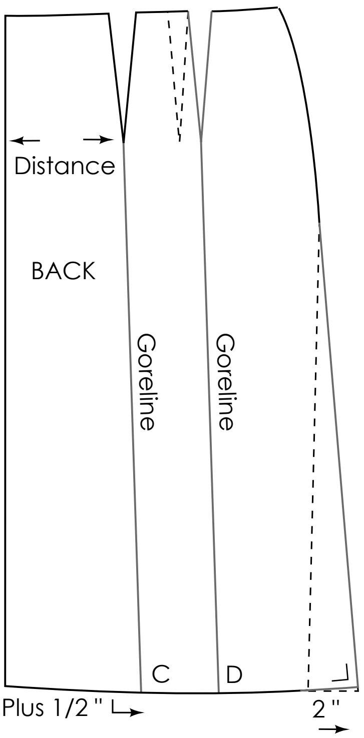


Figure 2



Figures 3, 4, 5 Front

- Cut and separate gore sections.
- Trace gores, placing center front of gore on fold (Figure 5).
- Measure down from waist of the gore panels to a location where pleats are to begin (example: 6 inches).
- Square out 1/8 inch from each mark. Label X.
- With a square rule held at this location, draw a line 1 1/2 inches out from point X for pleat depth. Mark.
- Square out 2 1/2 inches. Mark and blend hemline. Connect to complete pleats.
- Draw a blend line from X to the gore panel.
- Mark notches and grainline; add seams and 1/2- to 3/4-inch hem.

Figure 3

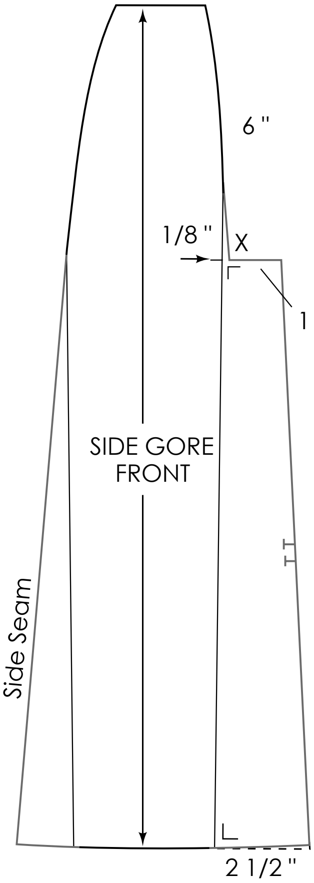

6"
1/8"
X
SIDE GORE
FRONT
Side Seam
2 1/2"

Figure 4

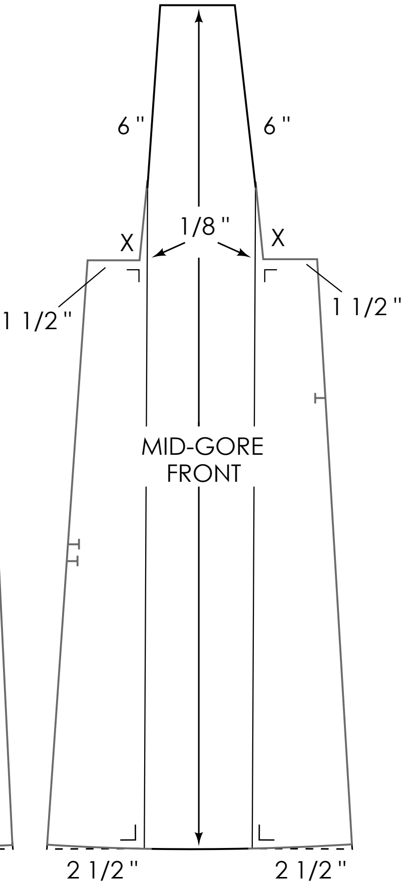
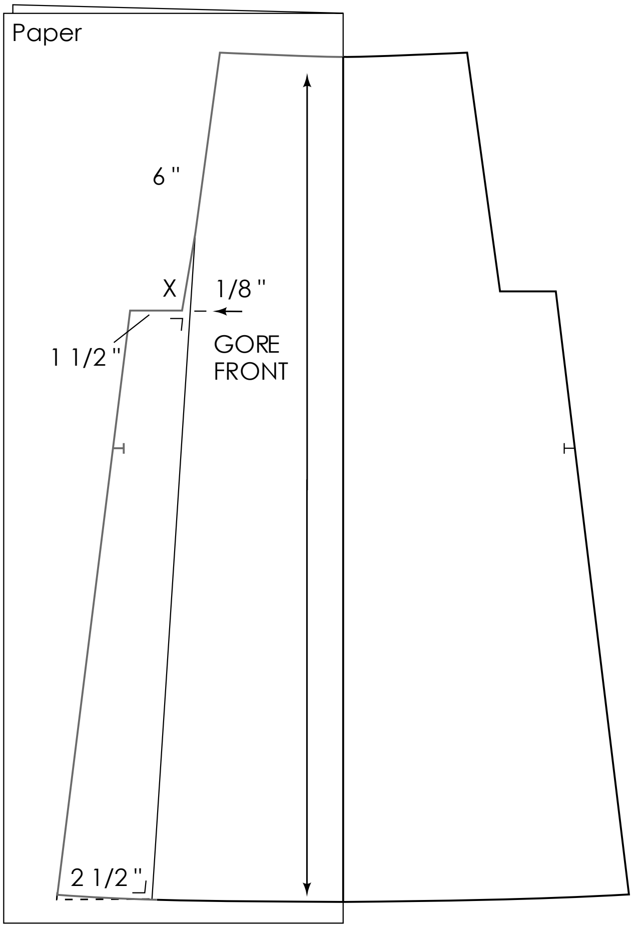

1 1/2"
6"
6"
1/8"
X
X
1 1/2"
MID-GORE
FRONT
2 1/2"
2 1/2"

Figure 5


Paper
6"
X
1/8"
1 1/2"
GORE
FRONT
2 1/2"

Figures 6, 7, 8 Back

- Repeat instructions given for front gores.
- Mark identification notches.

Figure 6

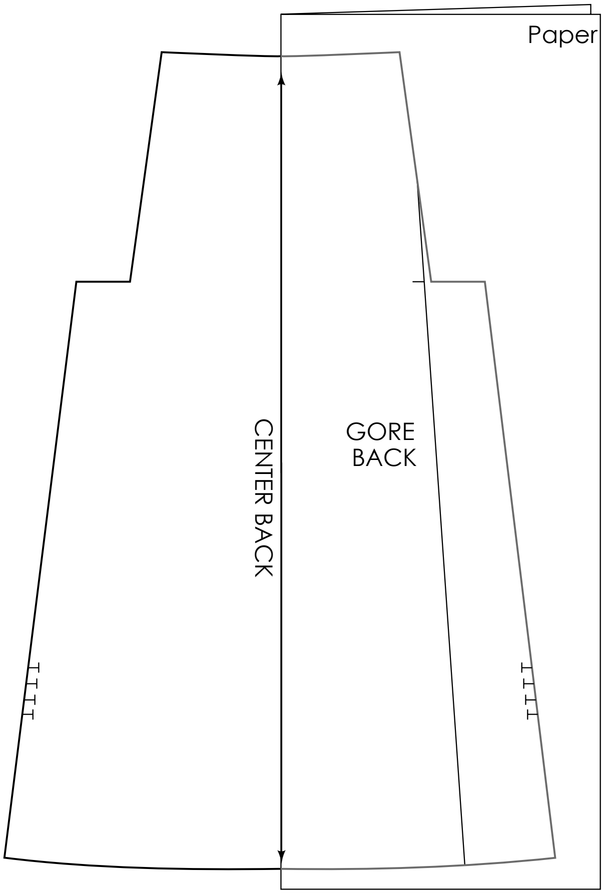

Paper
CENTER BACK
GORE
BACK

Figure 7

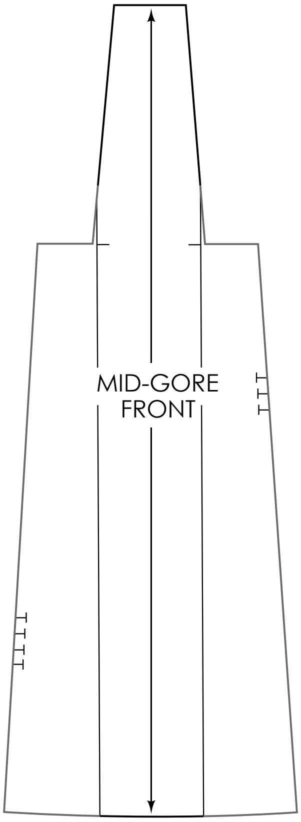

MID-GORE
FRONT

Figure 8

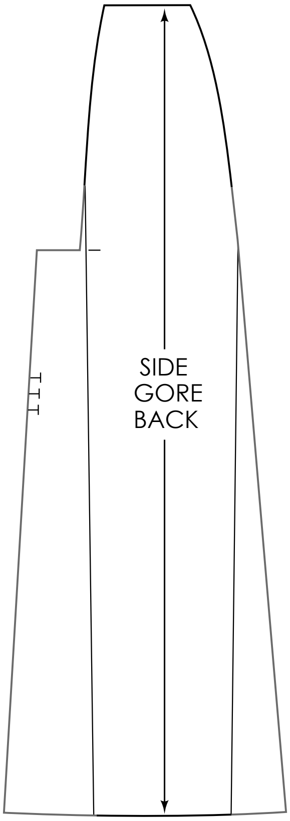
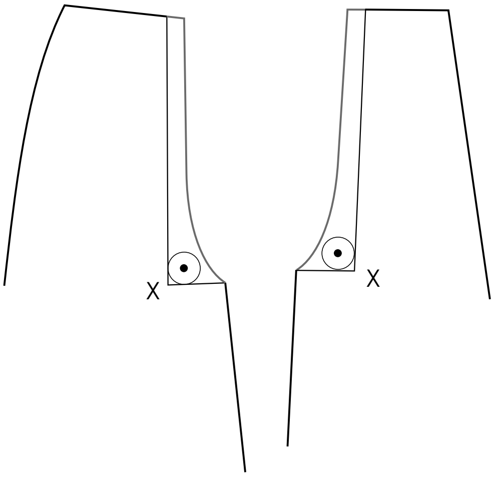

SIDE
GORE
BACK

Figure 9 Pleat Support

- To add seams (for gore panels with pleat), draw seam allowance from waist parallel to goreline, curving out to tip of the pleat, as shown.
- Place punch and circle 1/8 inch in and up from point X.

Figure 9



12-Gore Skirt

Introduction

Gores having 12 or more panels can be generated through the draft of a gore panel, which is cut as many times as it represents. Flares can be added to the shape of the gore panel in creating the Trumpet, Flip, and Tulip silhouettes.

The gore panel is drafted by dividing the waist and hip into the number of gores desired. The example is for a 12-gore skirt. The dart excess of the waist is absorbed into each of the cut panels.

Measurements Needed

- Waist ______________ plus 1-inch ease ______________.
- Hip ______________ plus 2-inch ease.
- Center front hip depth (9″) ______________.

Formula for 12-Gore Panel

Figure 1

- Draw a line to the length desired (A–B).
- Mark center front hip depth (C).
- Mark one-third between A and C (D).
- Divide the waist and hip measurement by 12, divide the measurement in half, and record.

  Waist = ____________ Hip = ____________

Figure 2

- Square a line out from both sides at A (waist) and C (hip) using the recorded measurements in Figure 1. The abdominal measurement is 1/8 inch less than hip measurement.

Figure 3

- Draw lines connecting the outline and blend to waist a slightly outward curve.

Designs using the 12-gore panel follow.

Figure 1

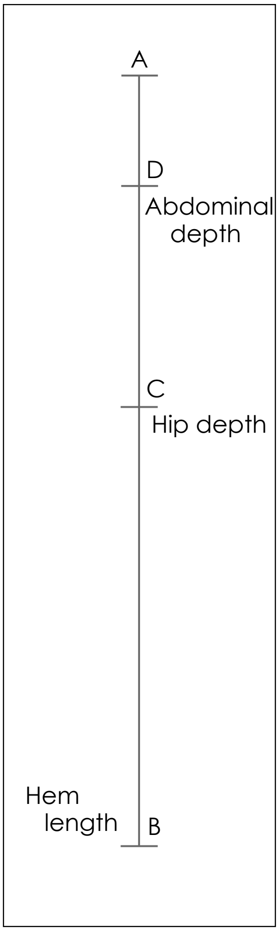


Figure 2

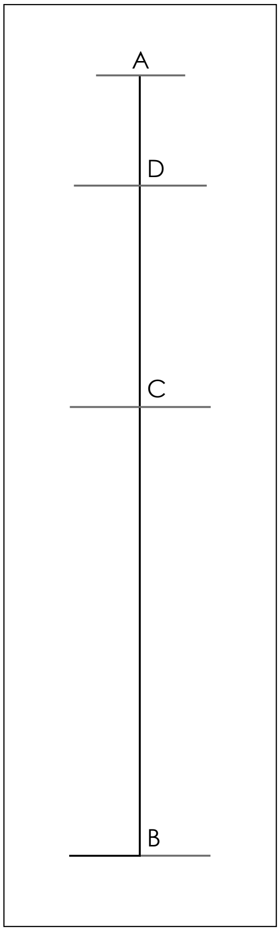
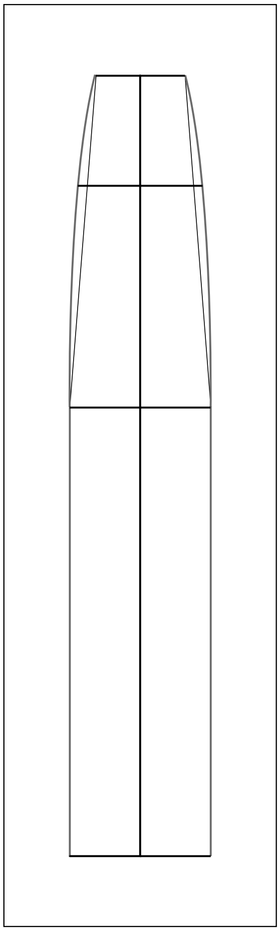


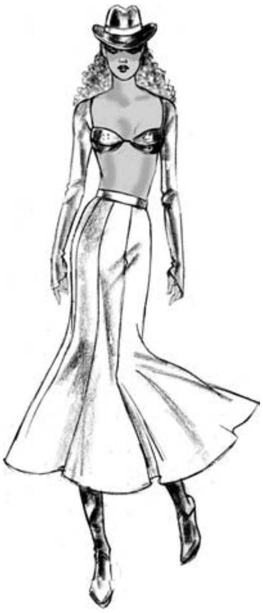
Figure 3

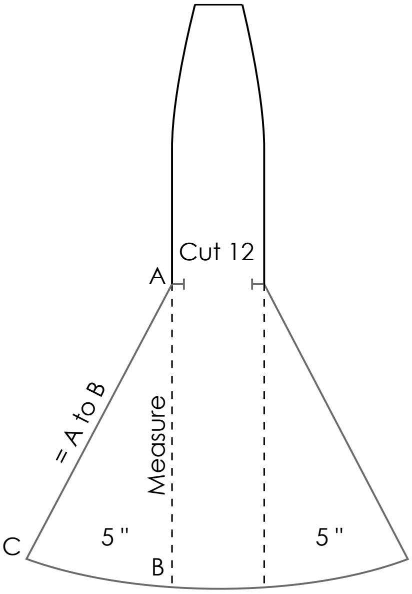


12-Gore Design Variations

Designs 1, 2, and 3 are examples of creative use of the 12-gore panels. To develop the designs, follow the instruction given for each of the gore flare designs.

Design 1



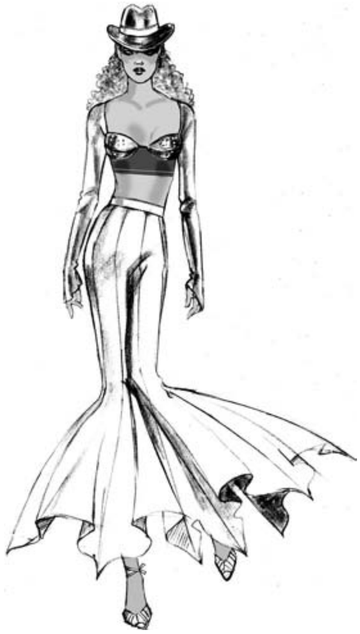

Cut 12
A
= A to B
Measure
C
5 "
B
5 "

Design 1
Flare added equally on each side of the 12-panel skirt.

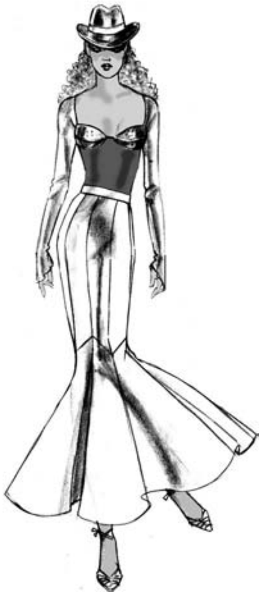
Design 2
Angle styleline cut through each panel with flare added.

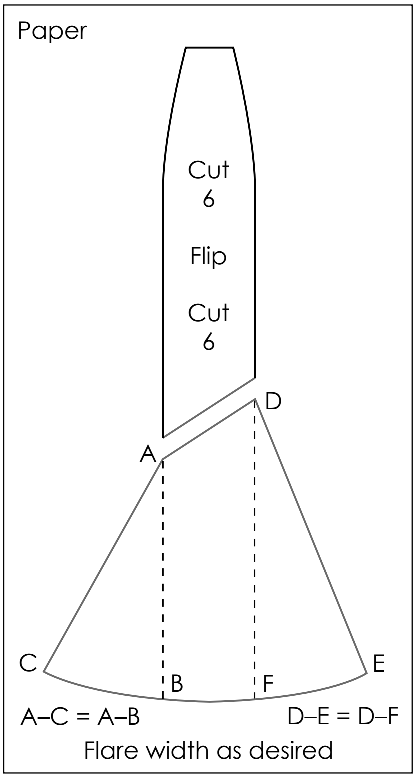
Design 3
Uneven flared hemline, pointed or rounded.

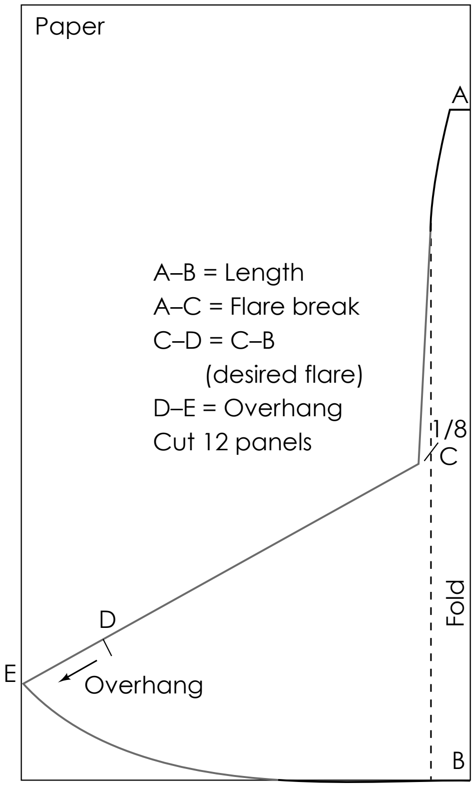
Design 3



Design 2



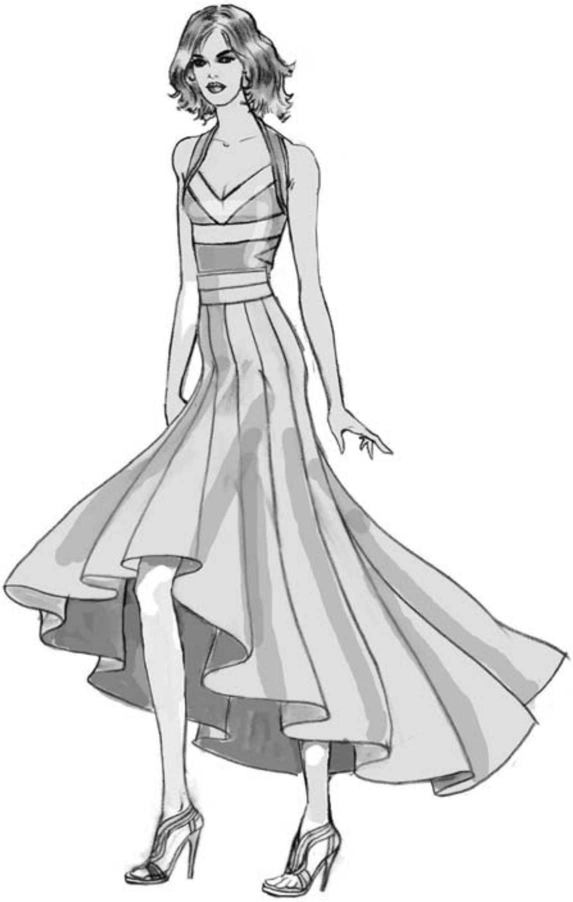

Paper
Cut
6
Flip
Cut
6
D
A
C
B
F
E
A–C = A–B
D–E = D–F
Flare width as desired


Paper
A
A–B = Length
A–C = Flare break
C–D = C–B
(desired flare)
D–E = Overhang
Cut 12 panels
1/8 "
C
Fold
D
E
Overhang
B

12-Gore Graduated Flare

Design Analysis

The graduated flare skirt can be developed from the 12-gore (or any gore) foundation panel by varying the hemline and the breakpoint for flare on each gore panel.



Pattern Plot and Manipulation

Figure 1

- Trace gore panel on paper. Label center front. Square line across panel and paper at hip level.
- Retrace the panel five times more, matching hip level and side seam. (This represents one-half of the skirt.)
- Number the panel 1 through 6.
- Mark 1/4 inch down from waist at center back and draw waistline to third panel (side seam). Trim.
- Extend center front (Panel 1) and back (Panel 6) to desired length. Label A and B and draw line for new hemline.

Flare Development

- Measure up from A at center front to a point where the flare will begin (example: 12 inches). Label C.
- B–D = A–C. Mark. Draw line from C to D.

Panel 1

- Measure out from A to width of the flare (example: 4 inches). Mark and connect with C. This line should equal A–C length. Blend the gore panel to hem. Label Flare 1.
- Repeat for other side of the panel and continue marking flare on each side of each panel equal to length and width of Flare 1. (Blue line indicate flare panels for gores 1, 3, and 5. Broken lines indicate flare panels for gores 2, 4, and 6.)

Separate Panels

- Place paper underneath the pattern and transfer gores as follows: For gore 1, trace bold line. For gore 2, trace flare indicated by broken lines. Continue the process until all gores are transferred.

Figure 1

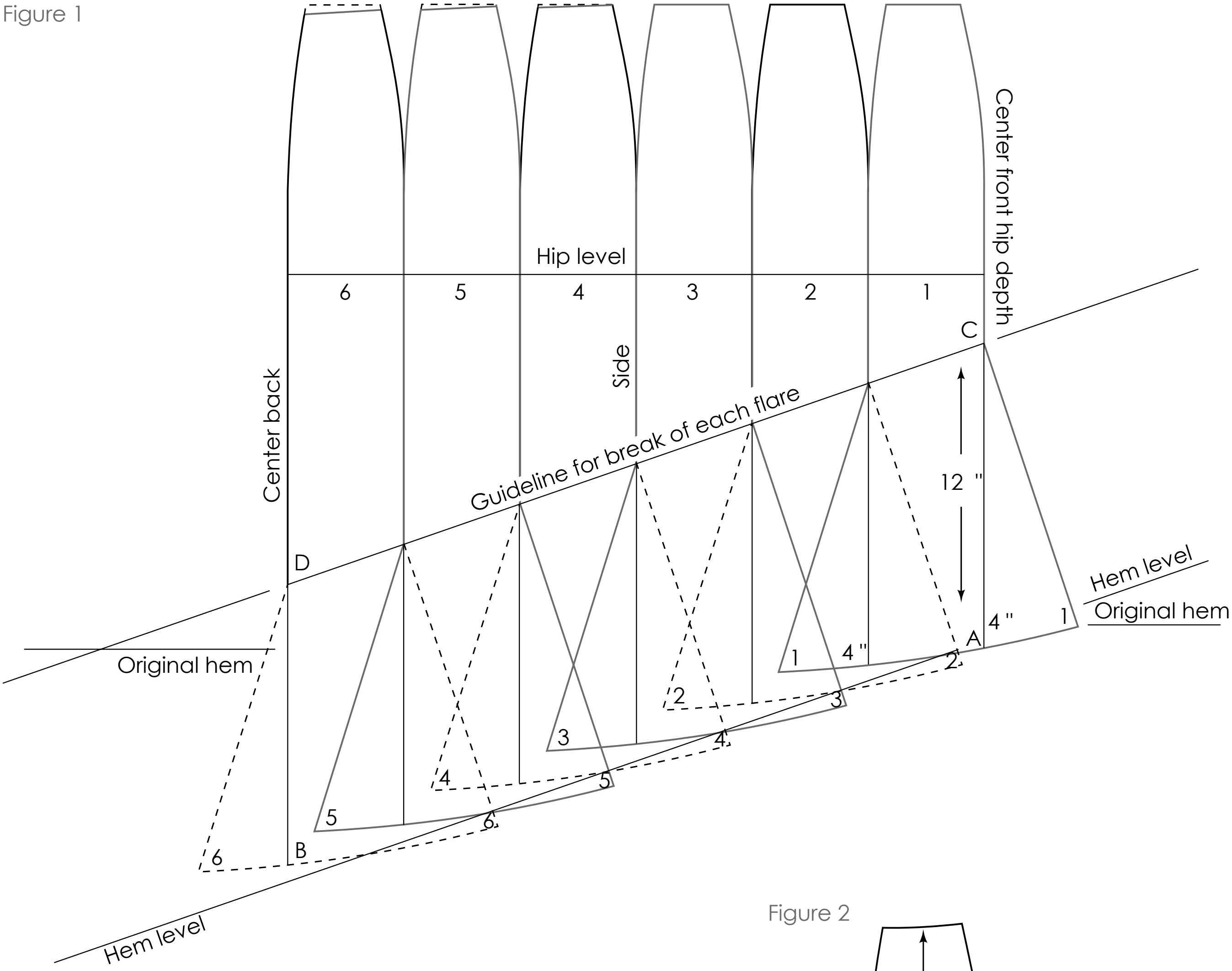

Hip level
6
5
4
3
2
1
Center front hip depth
C
Side
Center back
Guideline for break of each flare
12 "
D
Hem level
Original hem
4 "
1
A
4 "
1
2
Original hem
2
3
3
4
4
5
5
6
6
B
Hem level

Figure 2
This is an example of the panel shape for flare 1.

Figure 3 Zipper Seam
Wherever a zipper is placed, add 3/4 inch seam allowance to the length of the zipper; then the seam jogs back to 1/2 inch below zipper. Hem allowance is about 1/2 inch.

Figure 3

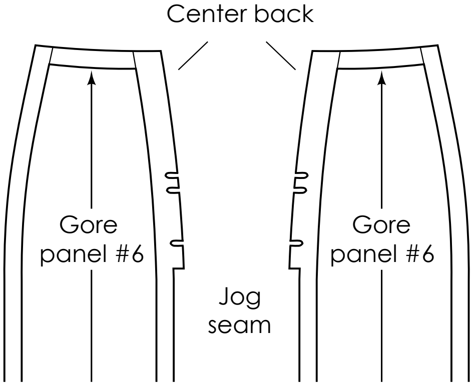
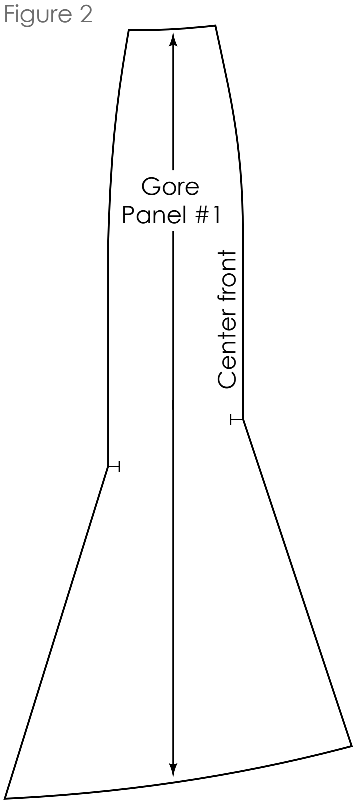

Center back
Gore panel #6
Gore panel #6
Jog seam

Figure 2


Gore Panel #1
Center front

Zigzag 12-Gore Skirt

Design Analysis

The gore skirt is designed with a zigzag pattern. The waist is raised above the waistline and cut to a V-shape at center. Flare breaks low on the hipline. An additional design is given for practice. Create your own design.

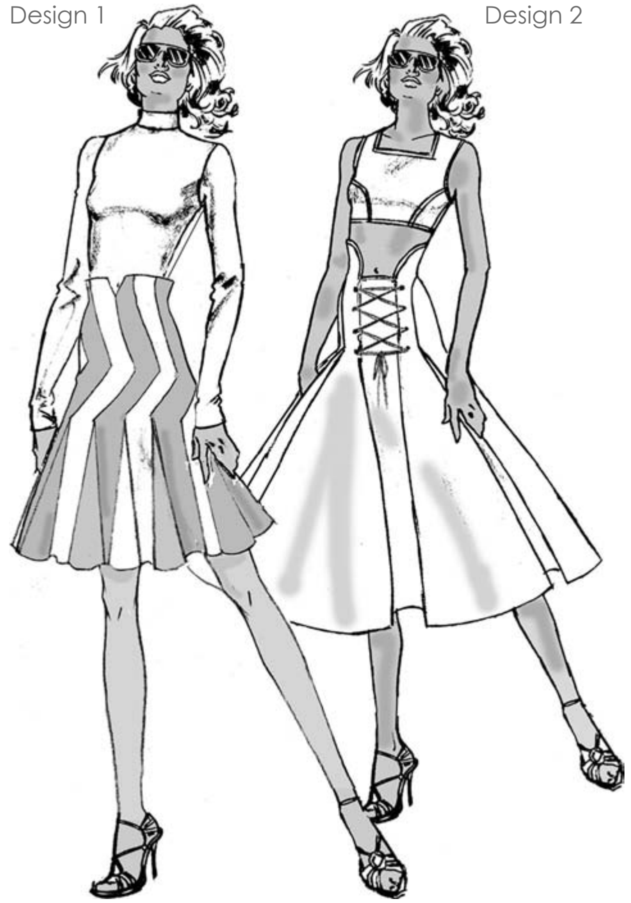
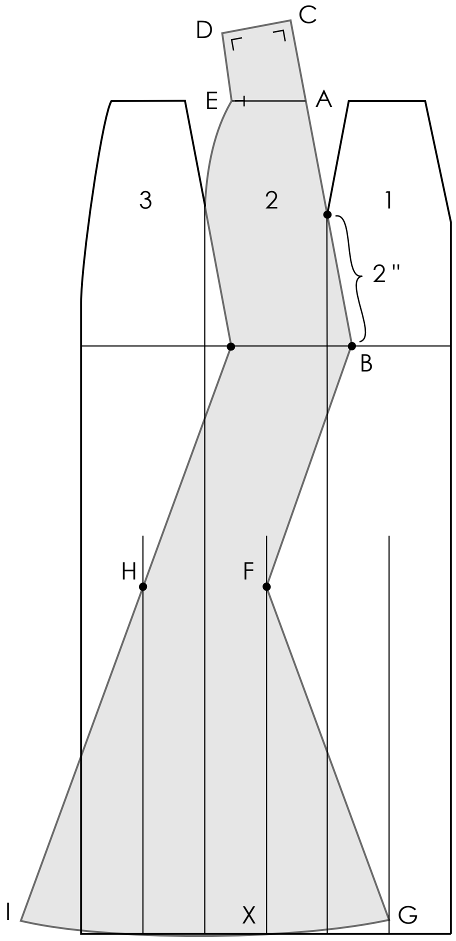


Figure 1



Pattern Plot and Manipulation

Figure 1

- Trace three copies of the gore panel side by side. Extend to desired length.
- Square short lines up from the centers of each panel. Label X at the center of panel 2 at hem. Panel 2 is plotted for the zigzag panel design.

A–B = 2 inches past dart point (line enters Panel 1). Line follows angle of dart leg.

A–C = 2 inches (for high waist), as shown.

C–D = A–E, squared from C. Draw line to E.

B–F = A–B, connected to center guide of panel 2 (X guideline).

F–G = F–X (for flare) ending at center guideline of panel 1. Draw a curved hemline to X. Panel 2 establishes panel width.

To complete the gore panel, draw parallel line with B and F. Continue line from H.

H–I = F–G (for flare). Draw curved hemline.

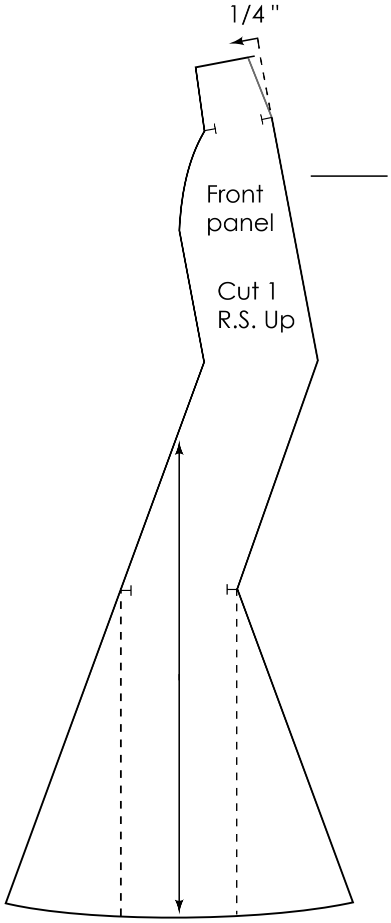
Figures 2a, b

- Trace two copies of the pattern for the center front panels.
- Label patterns: *Cut 1—right-side-up*.
- Modify the front panel by trimming 1/4 inch from the high waist of skirt for a "V" design.

Figure 3

- *Cut 10* panels. Label pattern.

Figure 2a


1/4"
Front panel
Cut 1
R.S. Up

Center front

Figure 2b

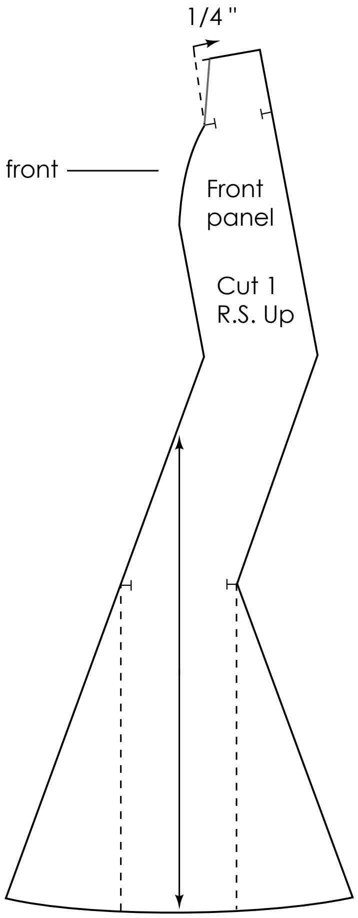

1/4"
Front panel
Cut 1
R.S. Up

Figure 3

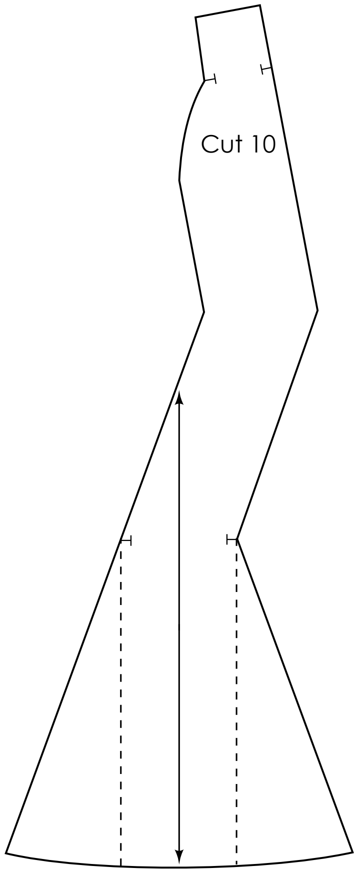
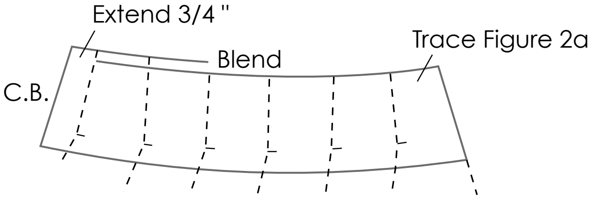


Figure 4 Facing

- Trace the tops of 6 panels side by side, ending 1/2 inch below waist. Start with the panel shown in Figure 2a and end with panel 6 in Figure 3. Add 3/4 inch for extension.

Figure 4

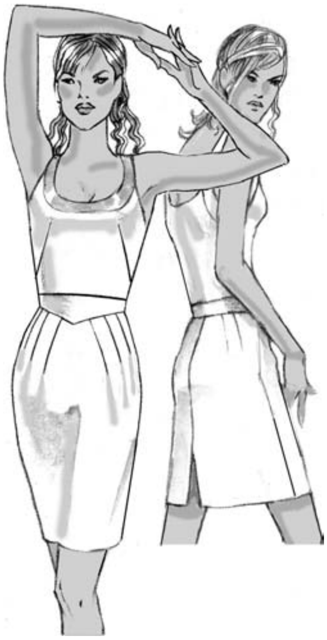

Extend 3/4"
Blend
Trace Figure 2a
C.B.

Facing—cut two copies for facing patterns

PEGGED SKIRT WITH PLEATS

Design Analysis

The side seams are tapered to create a basic peg skirt. Pleats along the waistline radiate toward side seam. The stylized waistband points at center front. The basic back skirt is tapered with a slit at back seam.



Pattern Plot and Manipulation

Figure 1

- Trace front skirt.
- Draw a line from 1 inch below center front to dart leg at waist.
- Mark 1 inch in at side hem and draw line to hip for pegged effect.
- Draw slash lines for pleats as shown.
- Cut pattern from paper. Trim broken line areas. Save wedge for waistband.

Figure 2

- Cut slash lines from waist to, not through, side seam and hem.
- Close waist darts (broken line).
- Spread each section 2 inches or more. Secure.
- Trace around pattern, marking pleat opening.

Skirt Pleats

- Fold the paper between openings (pleats).
- With tracing wheel, cross over folded pleats at waistline. Open pattern and pencil in perforated marks at waist.
- Notch for pleats.
- Trace back, taper side seam, and notch for slit (example: 7 inches up from hem; not illustrated).

Figure 1

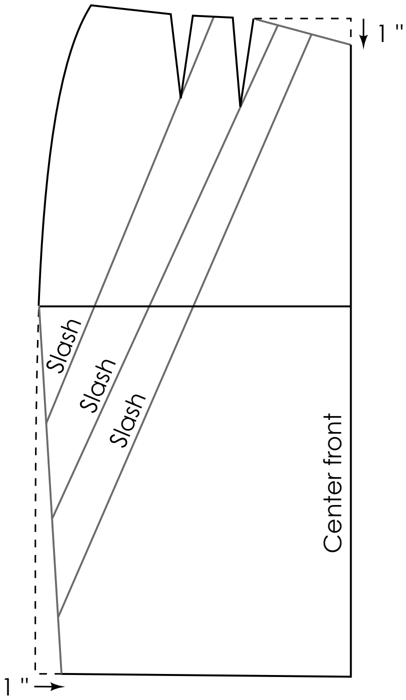


Figure 2

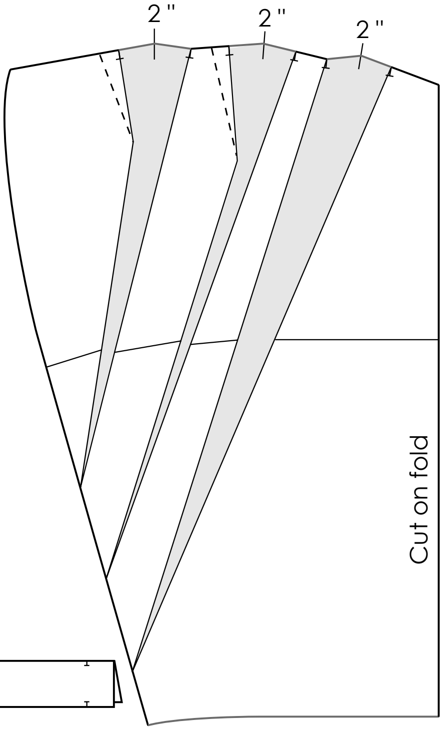
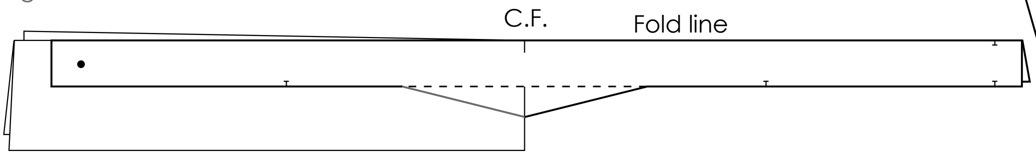


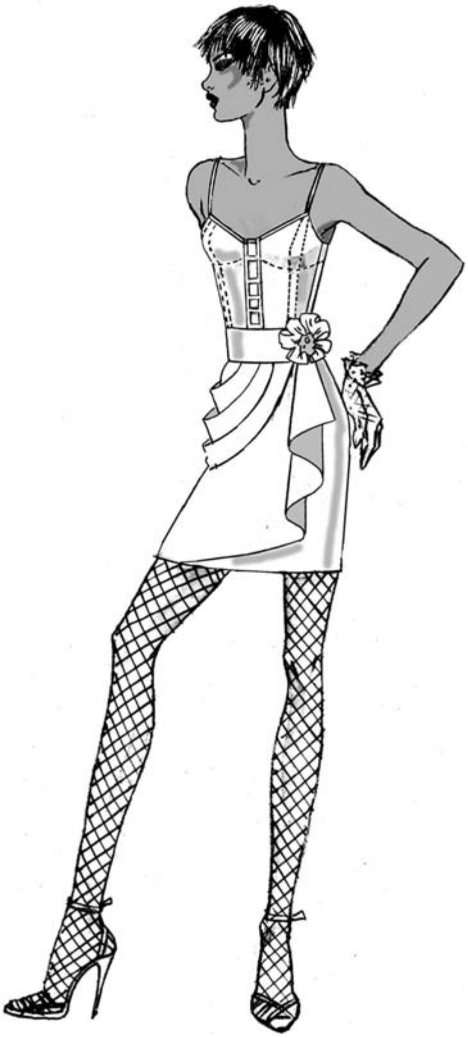
Figure 3 Belt Construction

- Trace basic belt on fold of paper. (See the Basic Waistband section earlier in this chapter for belt development, if needed.)
- Place wedge section to bottom of belt at center front and trace.
- Draw grainline and complete pattern for test fit.

Figure 3



DRAPED WRAP SKIRT WITH A CASCADE



Design Analysis

Five drapery pleats emanate from the waistband. The cascade is part of the skirt pattern. The drapery pleats end near the princess line on the opposite side of the skirt, as shown, or can end at the side seam, if preferred. Length can be added for variation.

The drapery pleats and their placement can be varied by following the same instructions. The fold of the radiating pleats can be made to fold up or down by changing the shape of the pleat underlay.

To complete the wrap patterns, a full front and back basic pattern are needed. Refer to the Basic Waistband section earlier in this chapter. For waistline instructions.

Pattern Plot and Manipulation

Trace a full front basic skirt pattern.

Figure 1

- A–B = 1 1/2 inches. Mark.
- B–C = Draw a line from B, touching the first dart point and ending at the side seam. Draw a line from second dart point to the slash line.
- C–D = Mark four equally spaced slash marks. Vary locations, if desired.
- B–E = Ignore dart when marking four equally spaced slash marks
- E–E′ = Combines dart intake.

Cascade

- Extend a straight line from E′ passing the side seam about 5 inches to allow for gathers.
- Draw curved hemline.
- Cut from the paper, discarding broken line area.

Figure 1

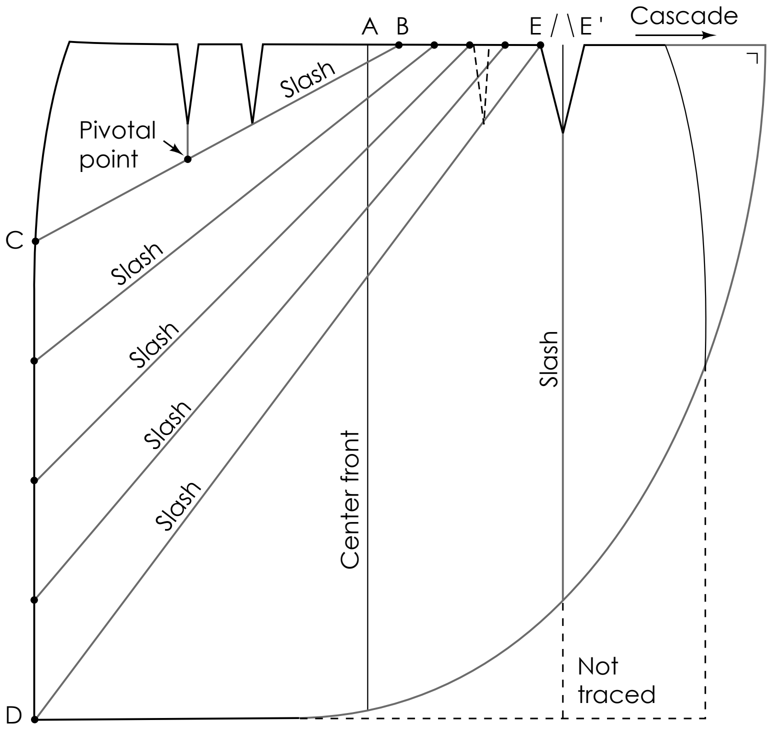


Figure 2

- Slash from B to pivotal point of the second dart.
- Close both darts and tape.
- Draw a line through the exact center of the B–F open space.

Figure 2

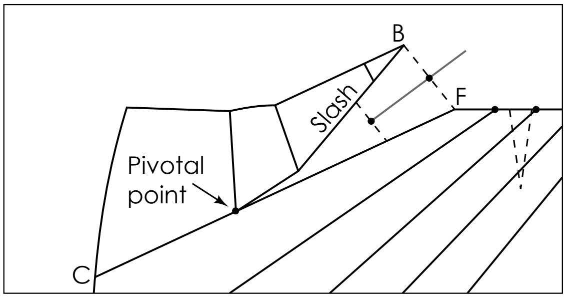

B
Slash
F
Pivotal point
C

Figure 3

- Extend a line from F (at the same angle of the waistline) until it intersects at the centered line. Label G.
- Connect a line from G to B. Both lines should be of equal length.

Figure 3

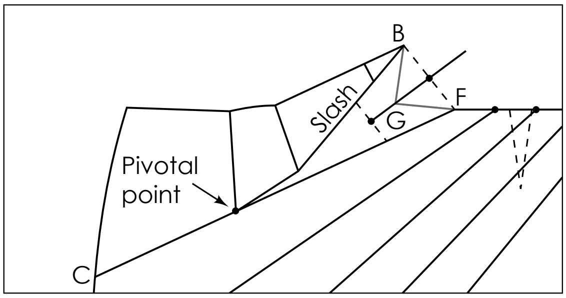

B
Slash
F
G
Pivotal point
C

Figure 4

- Cut all slash lines and spread equal to the B–F measurement.
- Follow Figure 3 instructions to complete each drapery pleat.

Figure 4

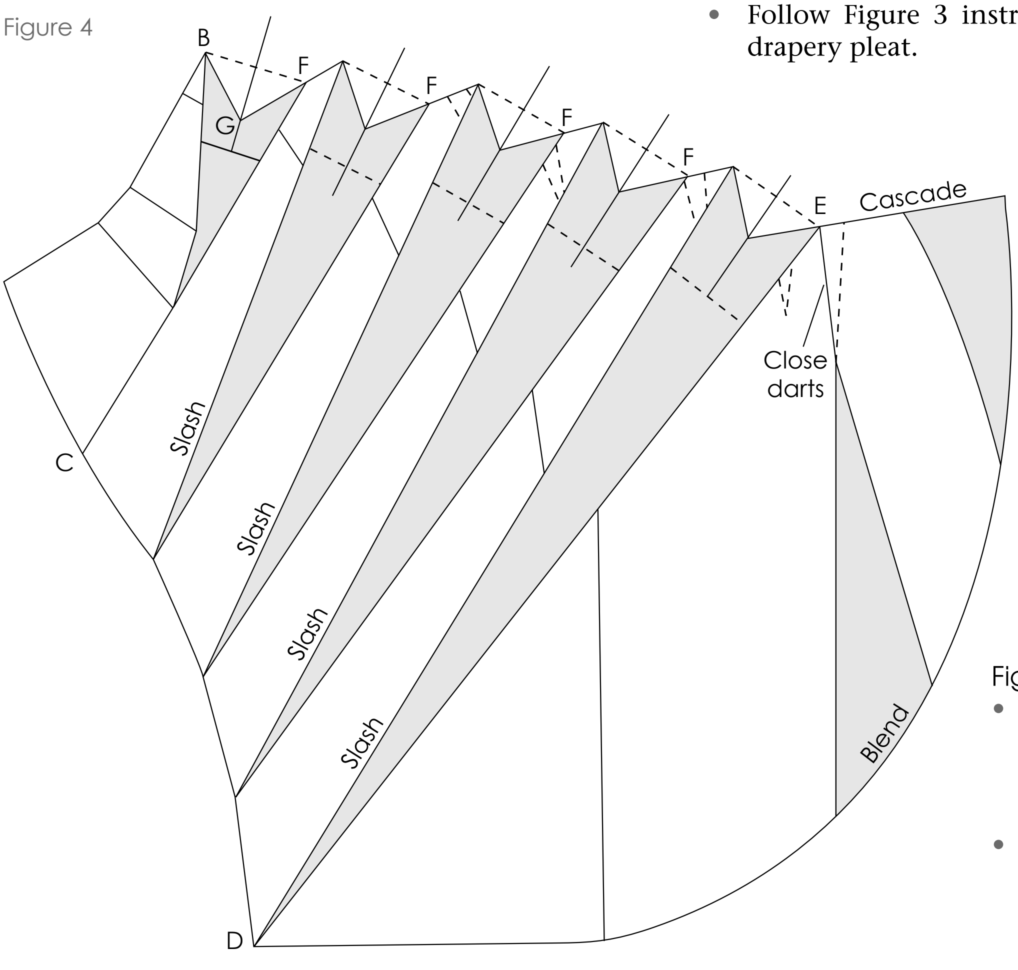

B
F
G
F
F
F
E
Cascade
Close darts
C
Slash
Slash
Slash
Slash
Blend
D

Figure 5

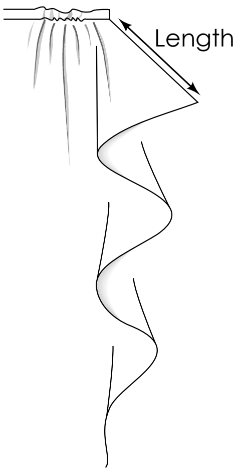


Figure 5 Cascade

- Slash a line from hem to dart point. Close the dart and trace. Blend a curved hemline.
- Decide length of the cascade and notch. The distance between the notch and E is for gathers.

Asymmetric Radiating Gathers

Design Analysis

Gathers radiate from a curved styleline that ends at the top of the waistband. It is called a tunnel loop. The waist darts are arranged to accommodate the styleline. The styleline is 1 1/2 inches wide and half of its width crosses over center by 7/8 inch.

Waistline instruction is in the Basic Waistband section earlier in this chapter. Zipper instruction is in the Preparing Zipper and Waistband section earlier in this chapter.

A facing supports the styleline area. The design should be cut in a soft fabric. The second design is a practice problem.

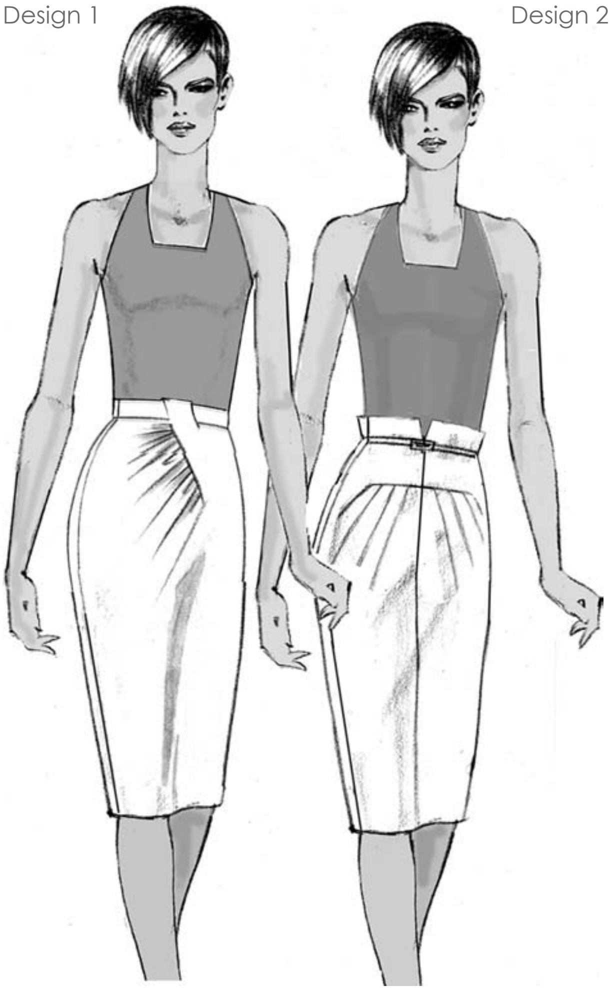
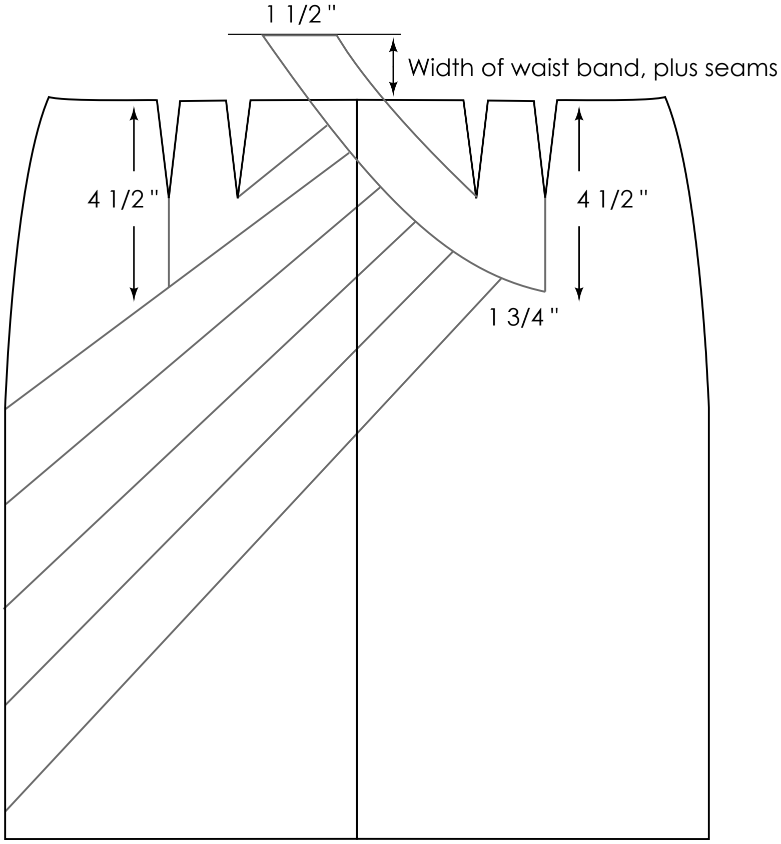


Figure 1



Pattern Plot and Manipulation

Figure 1

- Trace full front pattern.
- Extend dart points 4 1/2 inches down from waist.
- Draw the curved styleline from the dart, crossing 7/8 inch to the other side of the center line and continuing past the waistline 1 1/2 inches. The width of the tunnel loop is 1 1/2 inches.
- Draw a line parallel with the tunnel loop and end at the dart point.
- Draw the gather slash lines.

Waistband: See the Basic Waistband section earlier in this chapter. The waistband is cut in two sections so that the tunnel loop can be stitched into the top of the band.

Figure 2

- Slash and close darts.
- Slash gather lines. Spread at a 2-to-2 ratio. (See Skirts with Gathered Waistline section earlier in this chapter as a guide.)
- Trim 1/4 inch from gathered side, ending at zero, at dart point, to offset the bias stretch.
- Cut the basic back pattern with a center back seam to complete the design.

Figure 2

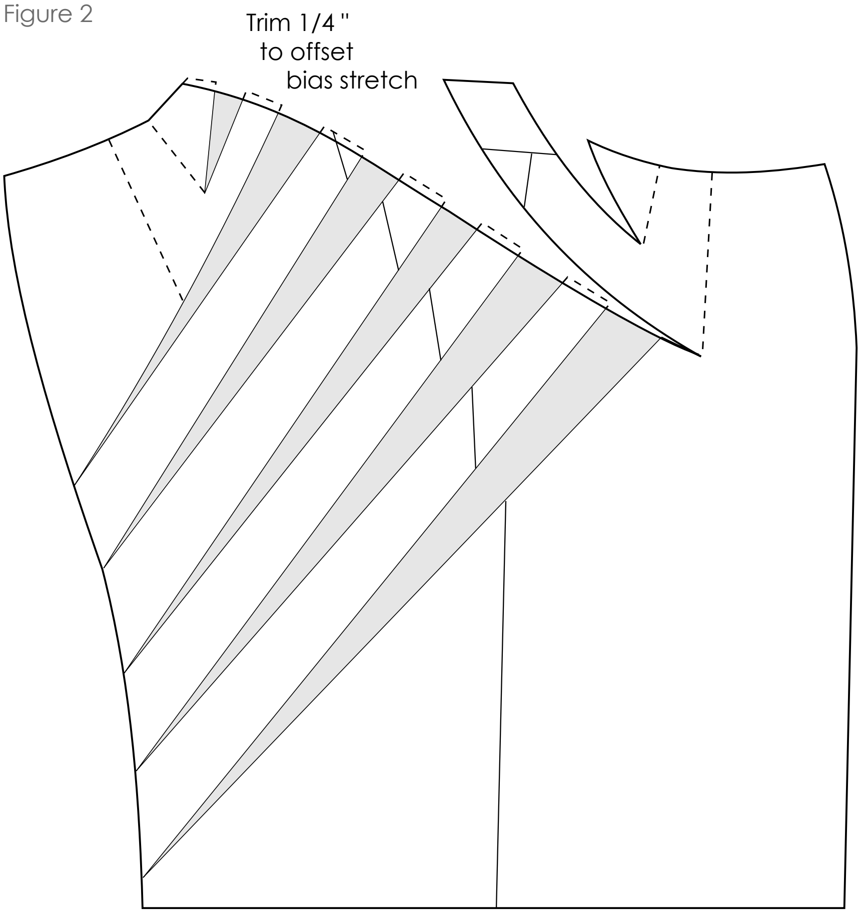
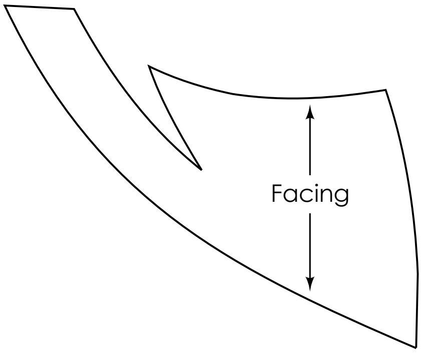


Figure 3 Facing

- Trace the outline for the facing pattern.
- Complete the pattern and cut in fabric for a test fit.

Figure 3

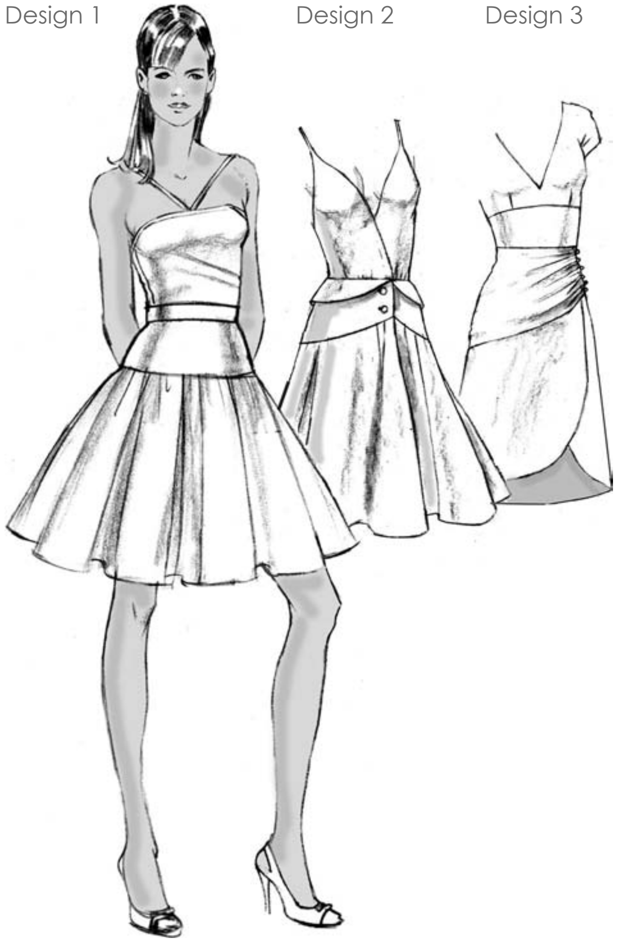


SKIRTS WITH YOKES

Yoke with Gathered Skirt

Design Analysis

The yoke of Design 1 begins 3 1/2 inches down from the waistline and is attached to a gathered dirndl skirt. The skirt is developed from a basic straightline skirt and is spread for fullness. Waistband instruction is the Basic Waistband section earlier in this chapter. Zipper instruction is in the Preparing Zipper and Waistband section earlier in this chapter. Designs 2 and 3 are for practice.


Design 1
Design 2
Design 3

Pattern Plot and Manipulation

Figures 1, 2

- Trace front and back patterns.
- Plot yoke (example: 3 1/2 inches below waist). Draw yokeline parallel with waistline.
- Draw slash lines below the yoke and label.
- Cut and separate patterns.

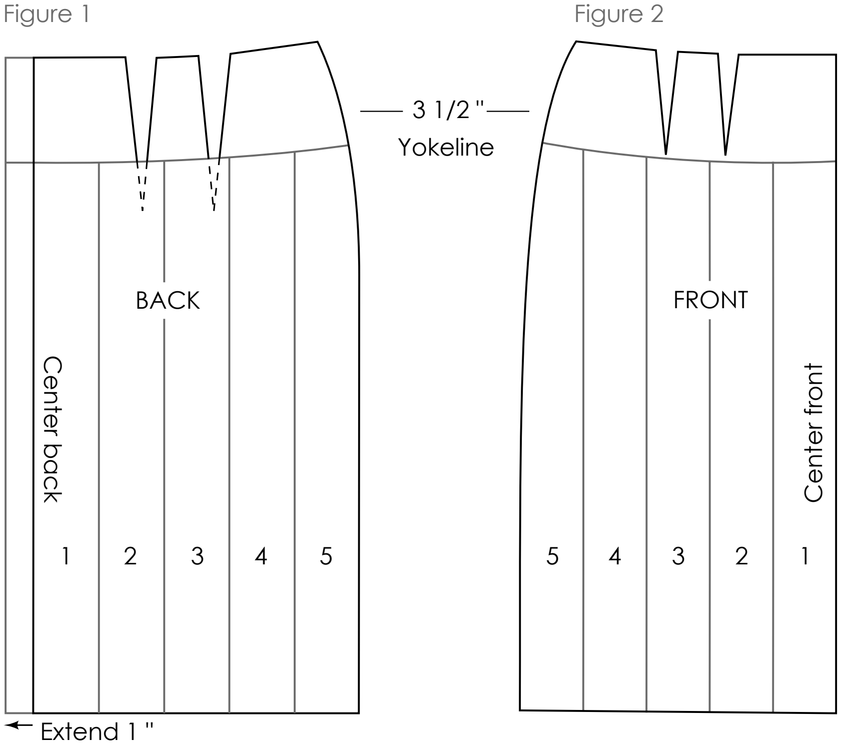


Figure 1
Figure 2
3 1/2"
Yokeline
BACK
FRONT
Center back
Center front
1
2
3
4
5
5
4
3
2
1
Extend 1"

Figures 3, 4 Yoke

- Close darts and trace front yoke on fold. (Broken lines indicate closed darts.)
- Close back darts and trace. Add 1-inch extension to center back.
- Mark notches and grainline.
- Cut 2 front yokes, one self and one for lining.
- Cut 4 back yokes, two self and two for lining.

Figure 3

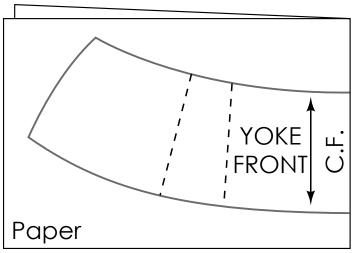


Figure 4

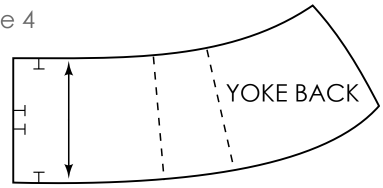
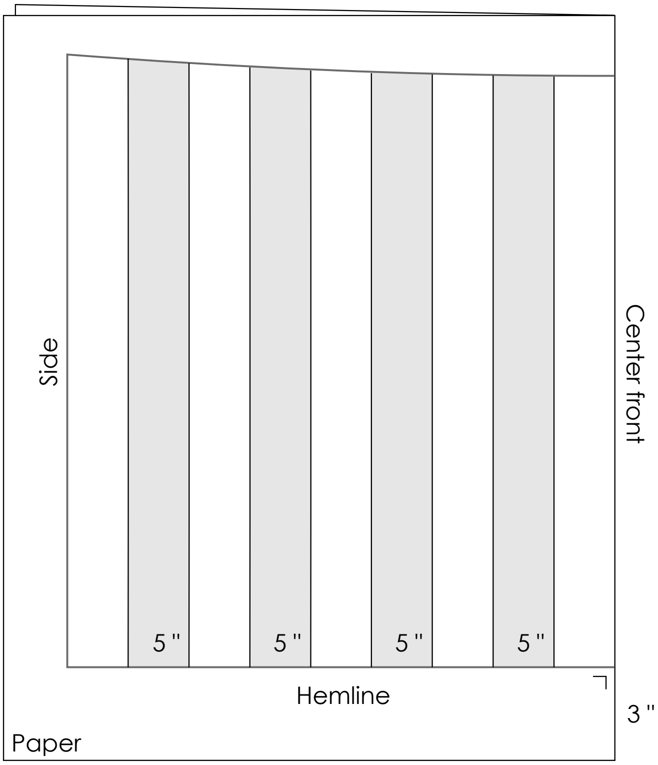


Figure 5 Dirndl

- Fold paper. Square a horizontal guide line 3 inches up from bottom of paper at fold.
- Cut through slash lines, place sections in sequence, and spread equally across paper (example: 5 or more inches or use ratio chart, within the Skirts with Gathered Waistlines section earlier in this chapter). Secure.
- Trace, blending across yokeline and hem.
- Repeat for back (not illustrated).
- Draw grainline. Complete the pattern for a test fit.

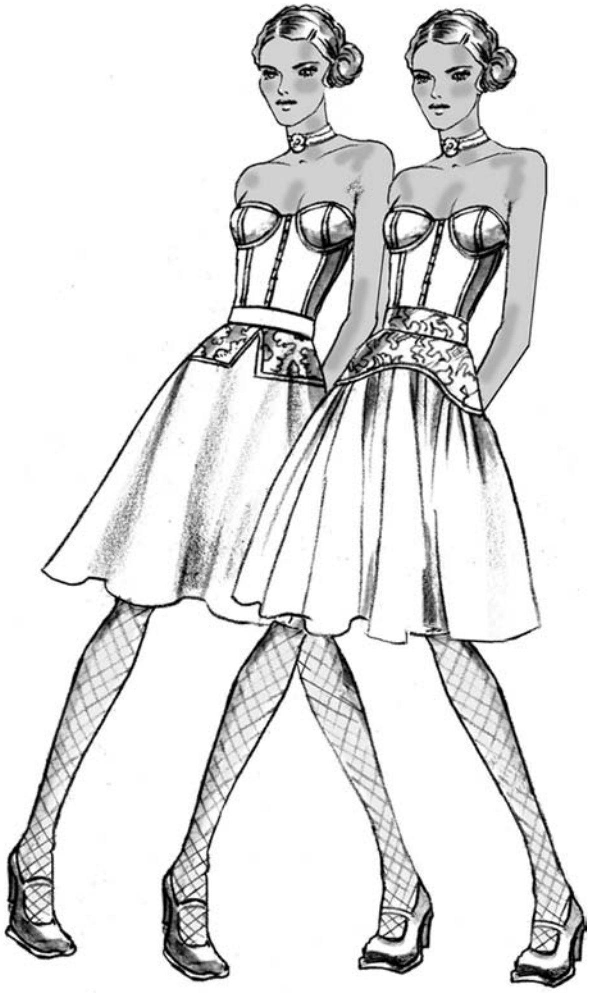
Figure 5



Diagonal Yoke with Flared Skirt

Design Analysis

The yoke for Design 1 is parallel to the waist, to the point where it ends at a diagonal to the center front waist. The back yoke is parallel with the waistline. The lower skirt sections are flared (one-sided fullness; flare based on Principle #1—Dart Manipulation and Principle #2—Added Fullness). Waistband instruction is in the Basic Waistband section earlier in this chapter. Zipper instruction is in the Preparing Zipper and Waistband section earlier in this chapter. Design 2 is a practice problem.



Pattern Plot and Manipulation

Figures 1, 2

- Trace basic front and back skirt.
- Plot stylelines on yoke (example: 3 1/2 inches below the waist from side to dart point to center front waist on front). Continue the yoke across back, parallel with the waist.
- Draw slash lines. Label A and B.
- Cut and separate patterns.

Figure 1

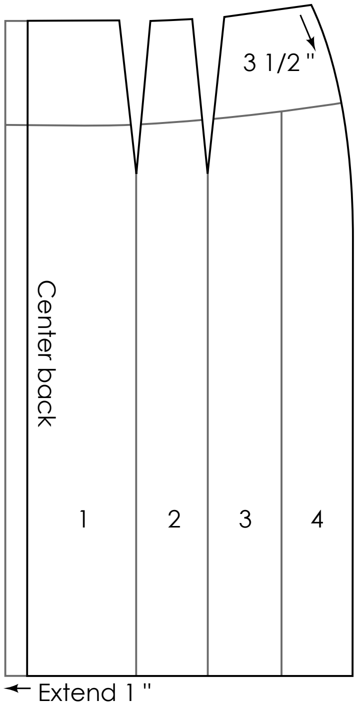
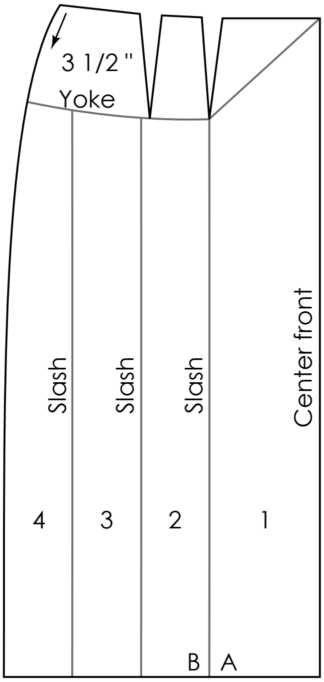


Figure 2



Figures 3, 4

- Cut slash lines to, not through, the waist.
- Place on paper. Spread front and back skirts. Back skirt: If closed darts do not provide equal fullness with front skirt, open dart point to yokeline and spread for greater sweep, 6 inches more or less. Trace patterns. Add to side seam as shown. Blend hemline.

Figure 5

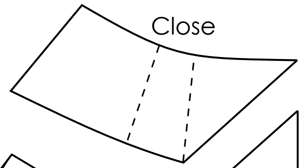

YOKE FRONT
Close

Figure 3

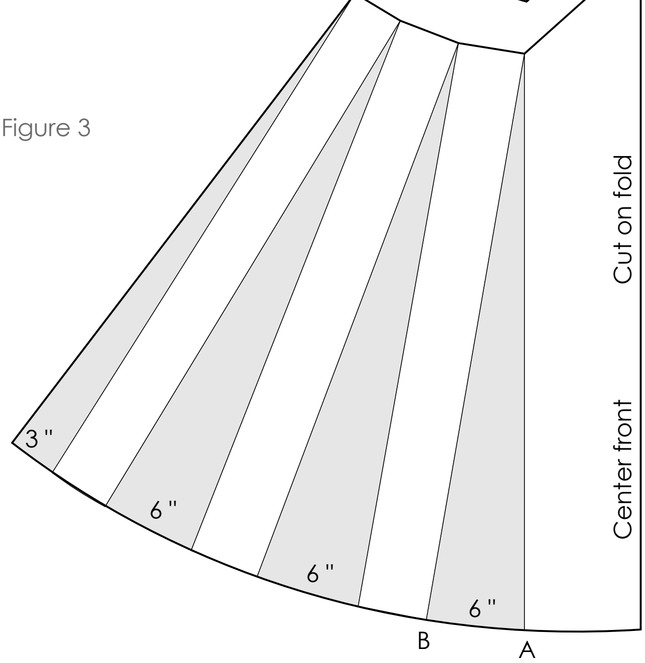

Cut on fold
Center front
3"
6"
6"
6"
B
A

Figure 6

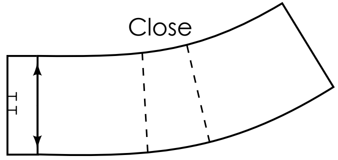
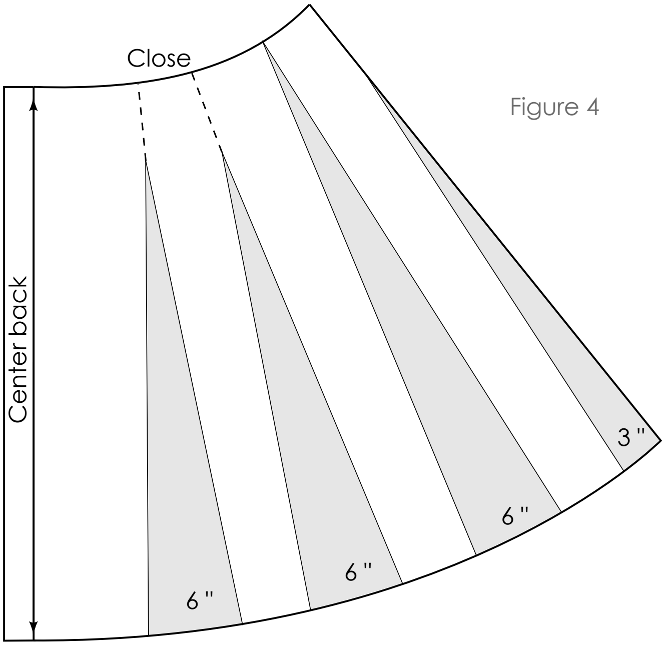

YOKE BACK
Close
1"

Figure 4

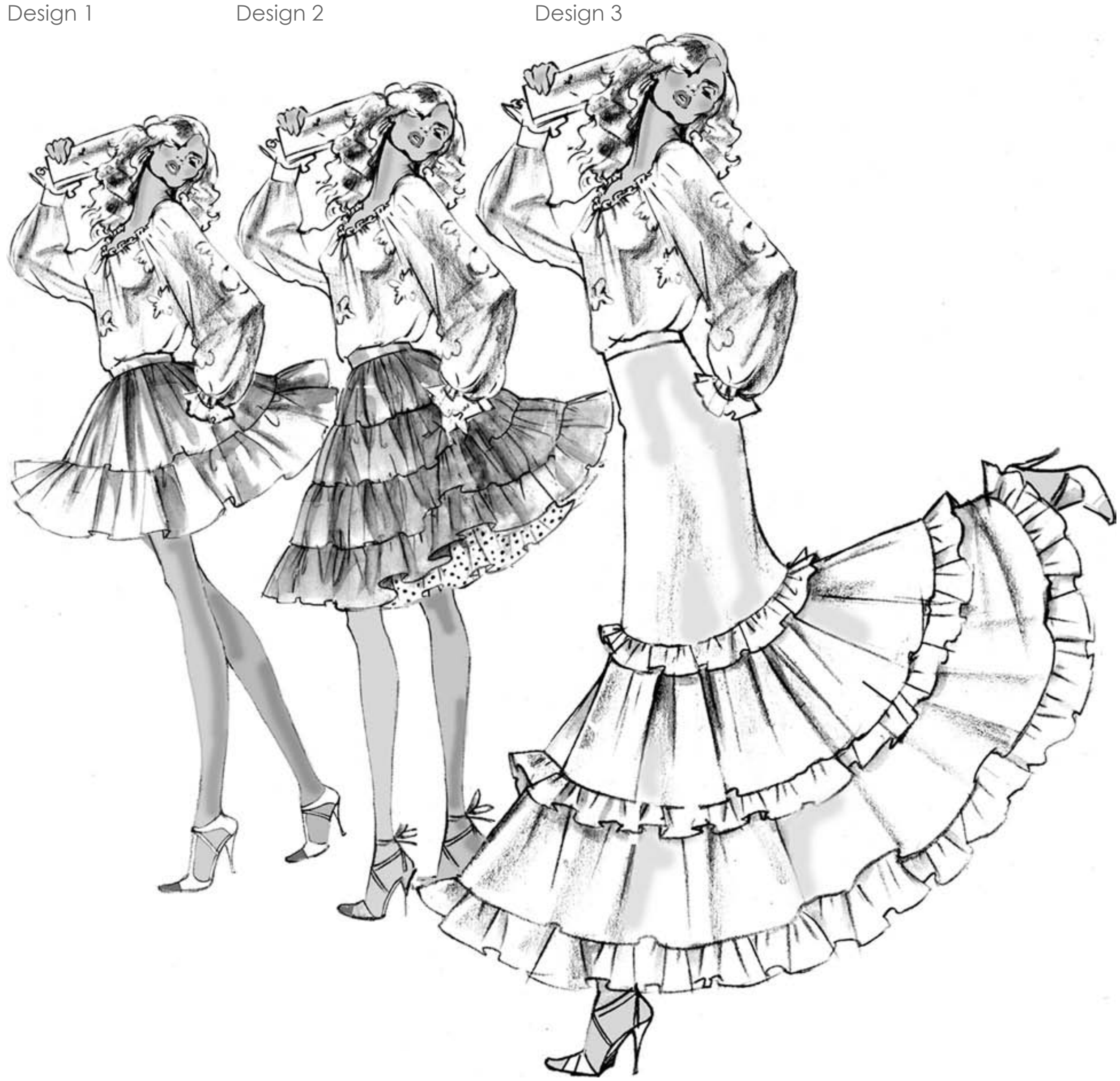

Close
Center back
3"
6"
6"
6"

Figures 5, 6 Yokes

- Close darts and trace. Add 1 inch at center back for zipper if side opening is not desired.

TIERS

Tiered designs are those featuring rows or layers of fabric attached to each other (as in Designs 1, 2, and 3) or separated and attached to a frame underneath (Designs 4, 5, and 6 two pages ahead). Tiers may be of graduated or even lengths. The width of each tier may vary. When planning a tiered design, the first tier, which is attached to the waistline (or yoke), may be from 1 to 1 1/2 times the fabric width. Each subsequent tier may increase in width from 1 1/2 to 2 times the width of the previous tier, depending on the amount of fullness desired. For waistband and zipper instructions, see sections Basic Waistband and Preparing Zipper and Waistband earlier in this chapter.



Terms

Fabric width. The distance from selvage to selvage.

One-half of fabric's width. The distance from selvage to center of fabric's width.

Three-fourths of fabric's width. The distance from selvage to a point three-quarters of the way across the fabric's width.

Attached Tiers

Design 2 is illustrated and should be a general guide for developing patterns with attached tiers. For additional practice, develop Designs 1 and 3 (floor-length) or create other variations based on this concept. Use the skirt pattern to proportionalize panels when developing tiers.

Pattern Plot and Manipulation for Design 2

Figure 1 Tiers

- Plot skirt as illustrated.

  Length = 29 inches

  Tier A = 6 1/4 inches

  Tier B = 6 3/4 inches

  Tier C = 7 1/4 inches

  Tier D = 8 3/4 inches

Figure 2 Skirt Panels

- Develop patterns for each tier (A, B, C, and D), using the tier length and fabric width as a guide. Tier A = Cut 1 width. Adjust back skirt by measuring down 3/8 inch at center back, blending to side seam.

  Tier B = Cut 2 widths.

  Tier C = Cut 4 widths.

  Tier D = Cut 8 widths.
- If more fullness is desired, add one-half width or more to each panel.

Figure 1

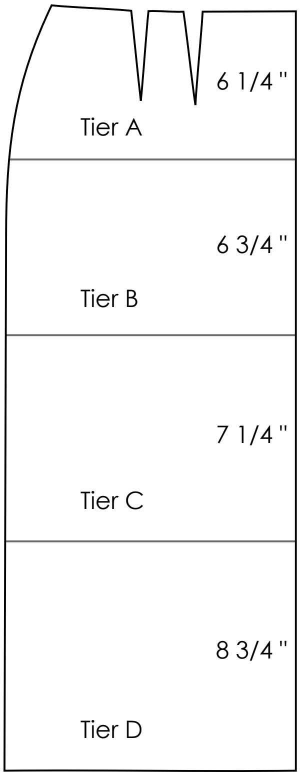
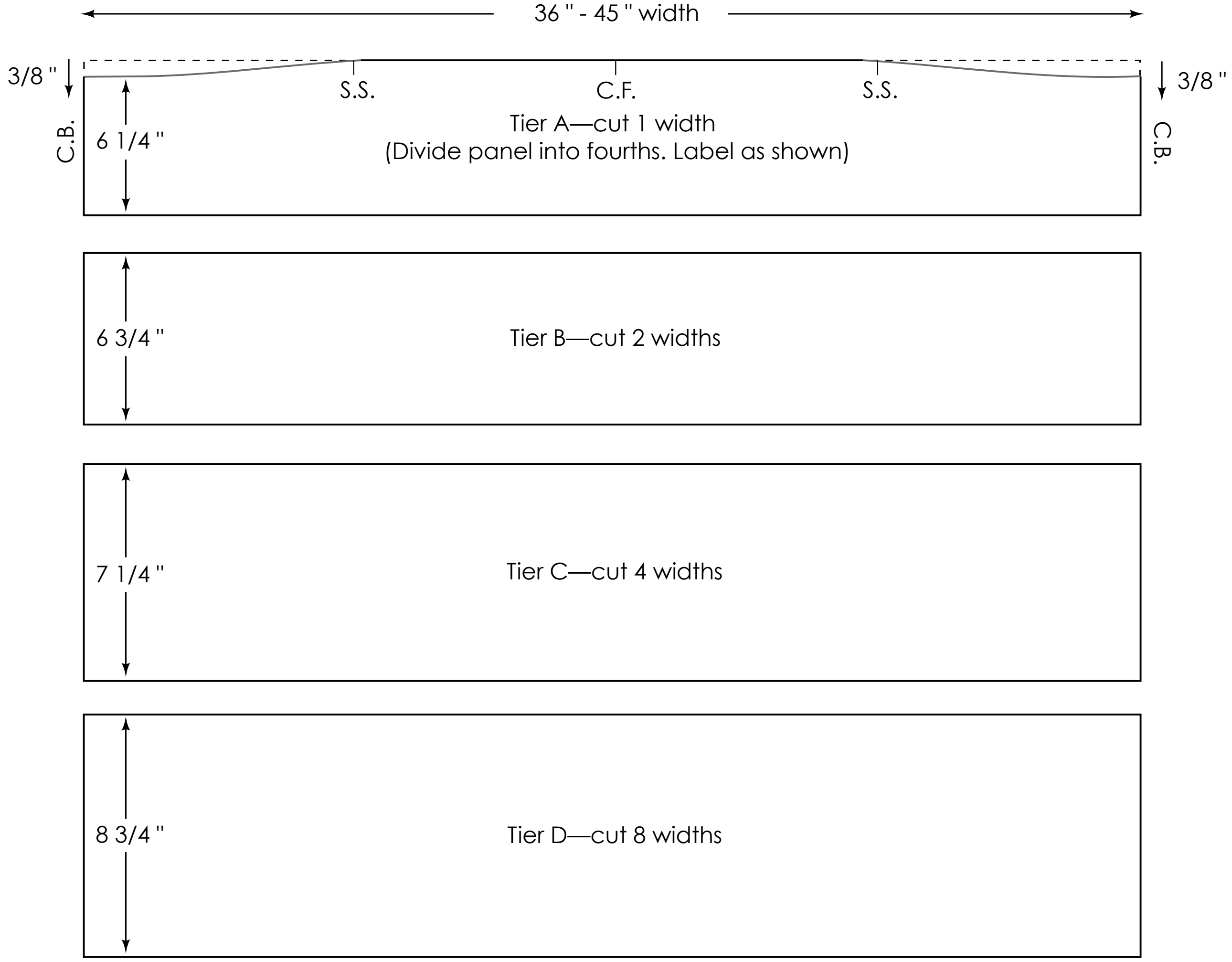

6 1/4 "
Tier A
6 3/4 "
Tier B
7 1/4 "
Tier C
8 3/4 "
Tier D

Figure 2

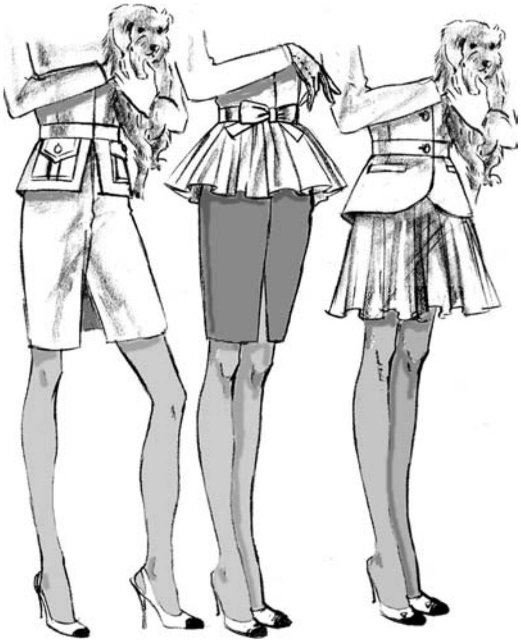

36 " - 45 " width
3/8 "
3/8 "
S.S.
C.F.
S.S.
C.B.
C.B.
6 1/4 "
Tier A—cut 1 width
(Divide panel into fourths. Label as shown)
6 3/4 "
Tier B—cut 2 widths
7 1/4 "
Tier C—cut 4 widths
8 3/4 "
Tier D—cut 8 widths

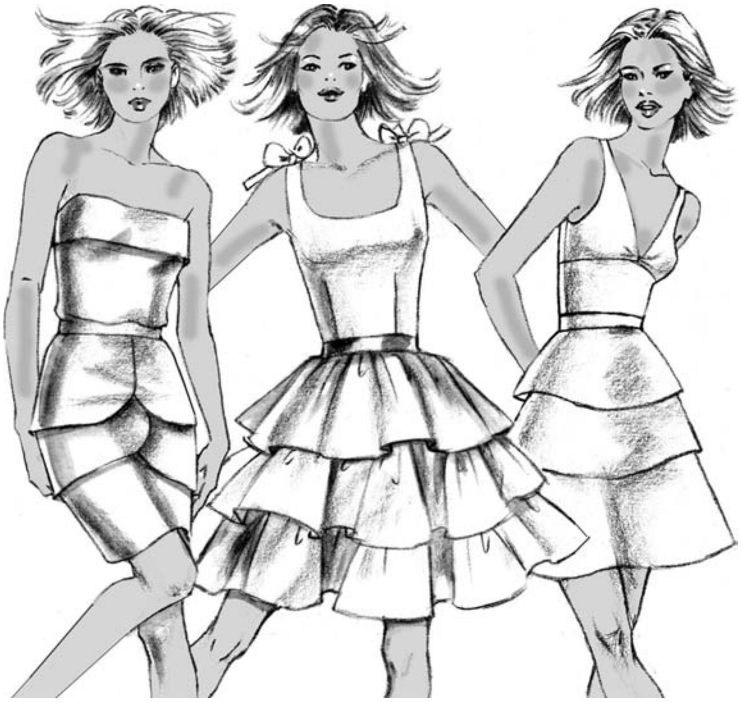
Separated Tiers

Tiers are single layers of gathered or flared panels stitched to a straight or flared underskirt. The tier placements are controlled through the seams of the underskirt, or through punch marks that guide the sewer. Tiers overlay each row to conceal the seams of the preceding rows. Arrange the tiers on a sample paper copy of the skirt. Place the copy skirt on the form to see if the tiers are creatively balanced. See sections on Preparing Zipper and Waistband and Basic Waistband earlier in this chapter for waistband and zipper instructions.

Peplums

Think of peplums as a single tier, or a short skirt. A peplum is the component that completes a garment.





Design 4 Design 5 Design 6

Pattern Plot for Designs 4, 5, and 6 (Based on a Length of 26 Inches)

Figure 1 Tier Planning

- Trace the front basic skirt and mark the tier placements using the measurements given (or your own). Label tiers A, B, and C.
- Square a line across the pattern for each tier.

Figure 2 Underskirt Support

- Mark the stitching line 1 1/2 inches above tiers A and B (broken lines). The skirt can be separated along the stitching line, or use the punch/circle to attach the tiers.
- Tiers—add 1 1/2 inches to the length of tiers B and C.

Figure 1

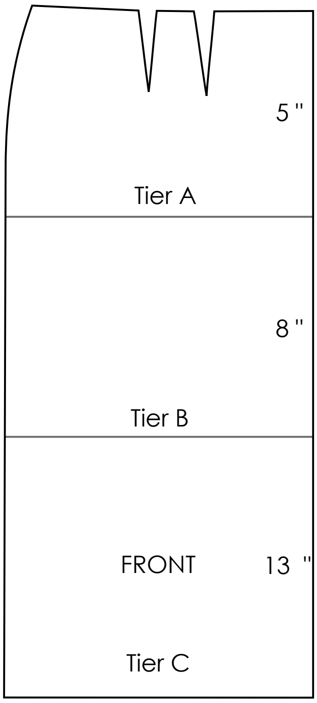
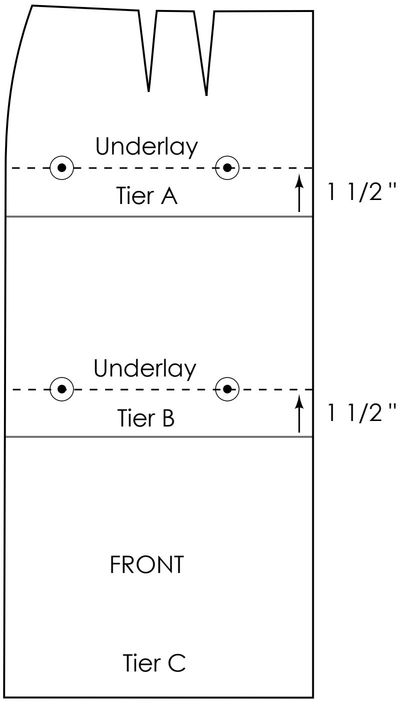


Figure 2



Gathered Tiers for Design 5

Figure 3 Tier Panels

- Draw vertical lines equal to each tier length; add 1 inch for the hem in Panels A, B, and C. For tiers B and C, add 1 1/2 inch underlay.
- Square a line out from each end equal to the fabric width and connect to complete each panel.
- Draw grainlines on each panel and complete the pattern for a test fit.
- Cut panels (increase or decrease for fullness as desired).

See Figure 2, "Skirt Panels" two pages back for adjusting the back waist.

Figure 3

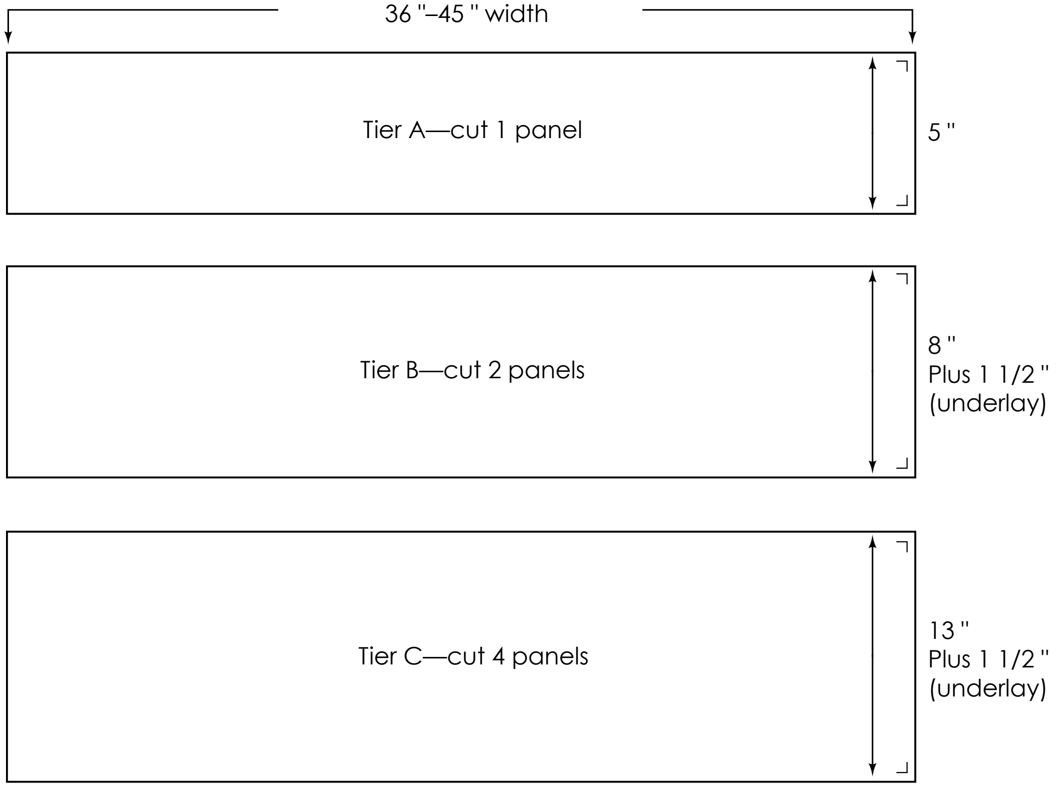
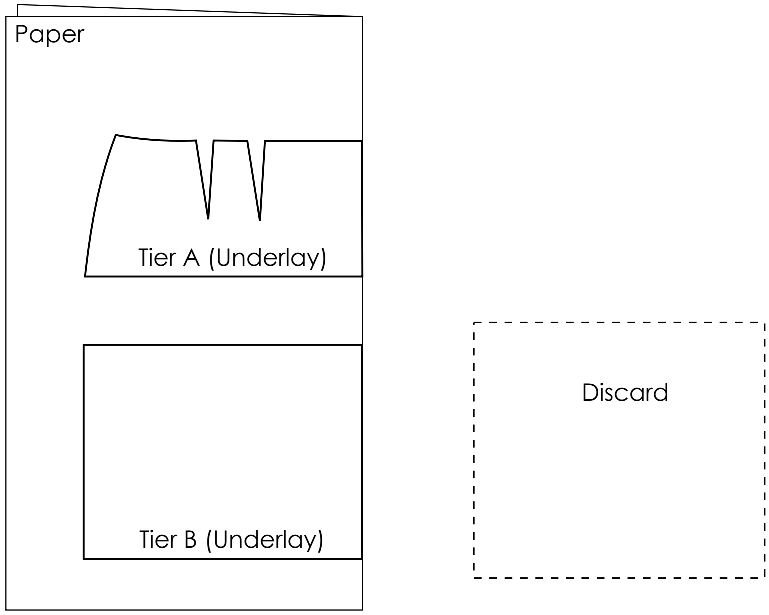

36 "–45 " width
Tier A—cut 1 panel
5 "
Tier B—cut 2 panels
8 "
Plus 1 1/2 "
(underlay)
Tier C—cut 4 panels
13 "
Plus 1 1/2 "
(underlay)

Figure 4


Paper
Tier A (Underlay)
Tier B (Underlay)
Discard

Repeat for back pattern

Figure 4 Skirt Frame

Punch Hole or Chalk Guide (See Figure 2)

- Stitch the tiers across the skirt, guided by punch holes or by chalk lines. Tier C is discarded.

Separating the Skirt (See Figure 4)

- Cut the skirt frame along stitchlines. The tiers are stitched into the seamlines. The last panel is discarded.

Flare Tiers for Design 6

Prepare a copy of the basic front and back skirt, following the plot instructions of Figures 1 and 2. The front skirt is illustrated.

Figure 5

- Cut each tier (A, B, C) from the skirt.
- Draw slash lines from dart points to the bottom of Tier A.
- Divide Tiers B and C into thirds and draw slash lines.
- Label slash lines XY, as shown.
- To prepare the underskirt, see Figure 4.

Figure 5

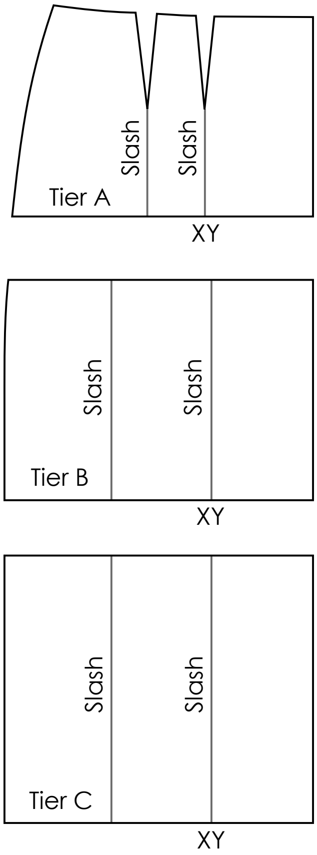

Slash
Slash
Tier A
XY
Slash
Slash
Tier B
XY
Slash
Slash
Tier C
XY

Figure 6

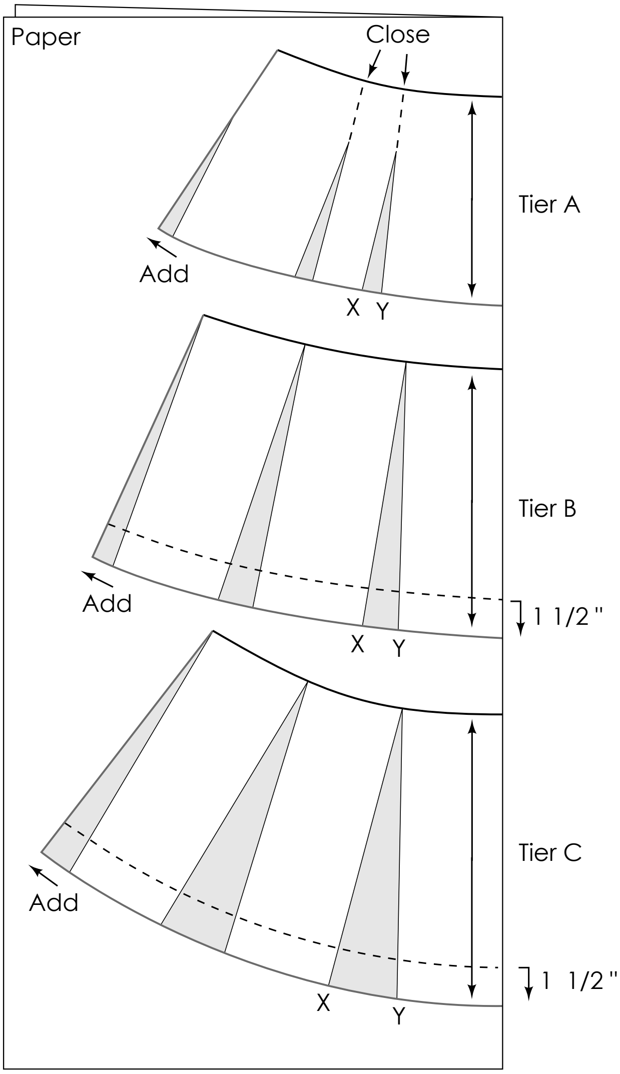

Paper
Close
Tier A
Add
X
Y
Tier B
Add
X
Y
1 1/2"
Tier C
Add
X
Y
1 1/2"

Figure 6

Tier A

- Close darts on Tier A. Retrace on the fold. (If more flare is desired, raise the pivotal point of the dart 1 or more inches.)

Tier B

- Spread slash sections twice as much as spaces in Tier A. Add 1 1/2 inches to length. Retrace on fold.

Tier C

- Spread slash section twice as much as spaces in Tier B. Add 1 1/2 inches to length. Retrace on fold.

Side Seams

- Add one-half of the X–Y space to side seams.
- Draw a line. Blend hemline.
- Repeat for back. Spread panels and add to the side seam.

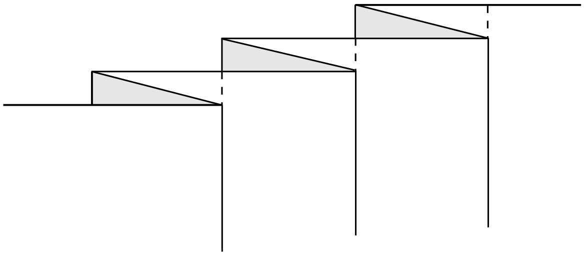
PLEATS

A pleat is a fold in the fabric that releases fullness. Pleats are used to increase stride room (as a single pleat on a straightline skirt) or as a design featuring groups of pleats on skirts, bodices, sleeves, dresses, and jackets. Pleats are formed in a variety of ways. They may be folded and pressed or left unpressed, stitched or left unstitched. They may be grouped together with even or uneven spacing. The pleat depth may be single, double, or triple. For variation, they may be developed parallel with the fold line or at an angle to it.

Types of Pleats

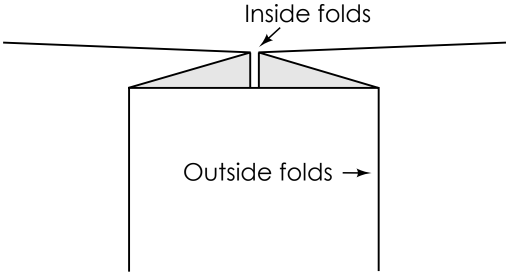
Knife or Side Pleats

Pleats are grouped and face in one direction.



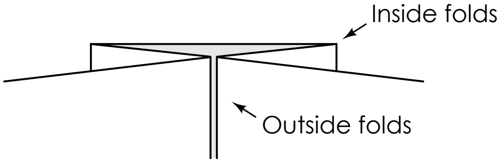
Box Pleats

Pleats are folded away from each other on right side of garment.



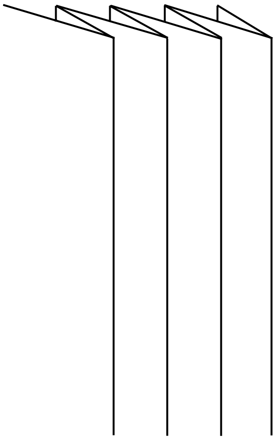
Inverted Pleats

Pleats are folded to meet each other on right side of garment.



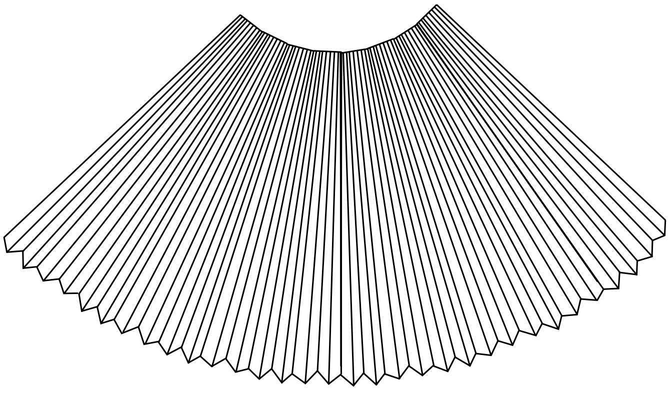
Accordion Pleats

Pleats have folds resembling the bellows of an accordion. The pleats are close together and depth is equal from waist to hem.



Sunburst Pleats

Pleats fan out and graduate from the waist. They are used on circle skirts. To sustain pleating, the fabric should be synthetic or a blend with over 50 percent synthetic fibers.



Pleat Terminology

Figure 1

Pleat Depth

- Pleat depth is the distance from outside fold of the pleat (labeled X) to the inside fold (labeled Y). (See the shaded area of the first pleat.)

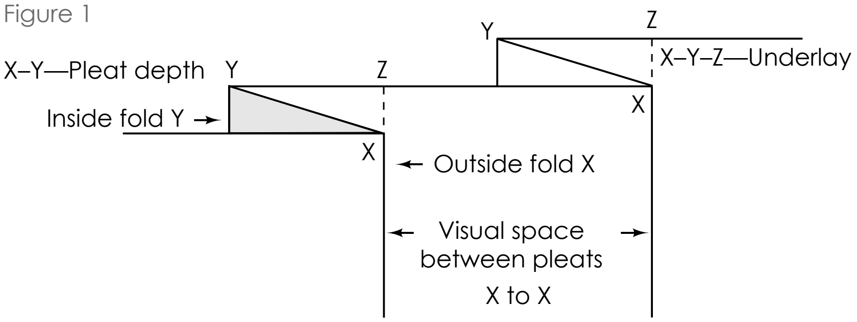
Pleat Underlay (Forms the Pleat)

- Pleat underlay is always twice the pleat depth (X to Y to Z). Example: 2-inch pleat depth = 4-inch underlay.

Pleat Spacing

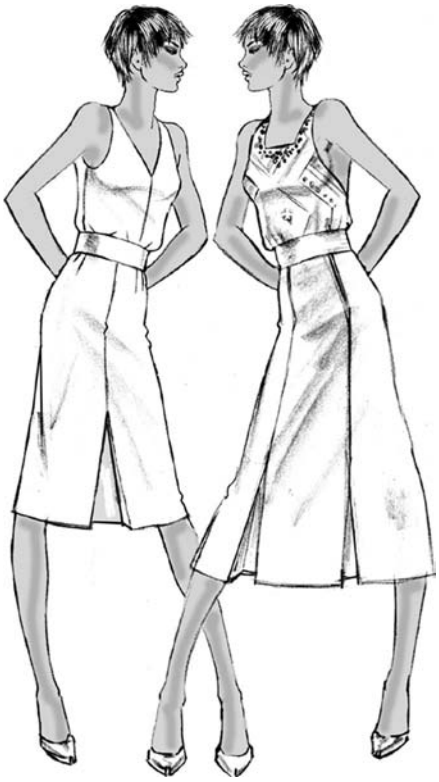
- Distance between pleats: Pleat markings on the pattern (X–Y = pleat depth; X–Z = pleat underlay; X–X = space between pleats).

Figure 1


X–Y—Pleat depth
Y
Z
Inside fold Y
X
Outside fold X
Y
Z
X–Y–Z—Underlay
X
Visual space between pleats
X to X

Kick Pleats

Kick pleats are short pleats (side, inverted, or box pleats) placed at center front, center back, sides, or in a goreline. A variety of types of kick pleats are described.



Knife Pleat (Front or Back)

Figures 1a, b

- Mark A for pleat placement. (Example: 8 inches up from hem at center front or back.)
- Square 2 inches from A (pleat depth). Label B.
- Repeat at hem and connect.
- Add seams to skirt and add 1/2 inch along center line to B for pleat control. Punch and circle 1/8 inch in and up from A (Figure 1a).

Fold pleat and stitch or leave unstitched as a vent (Figure 1b).

Figure 1a

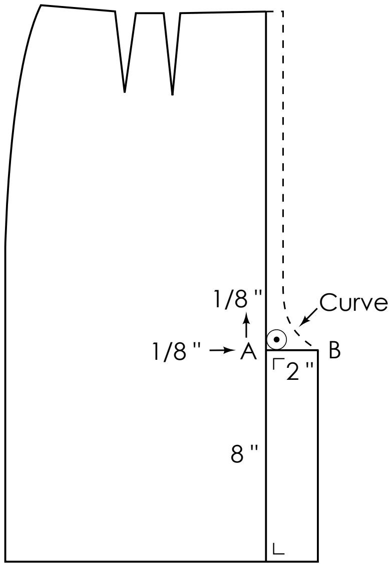

1/8"
1/8"
A
Curve
B
2"
8"

Figure 1b

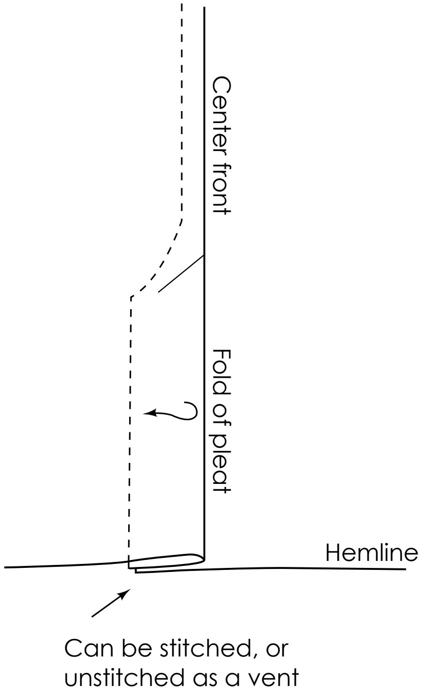
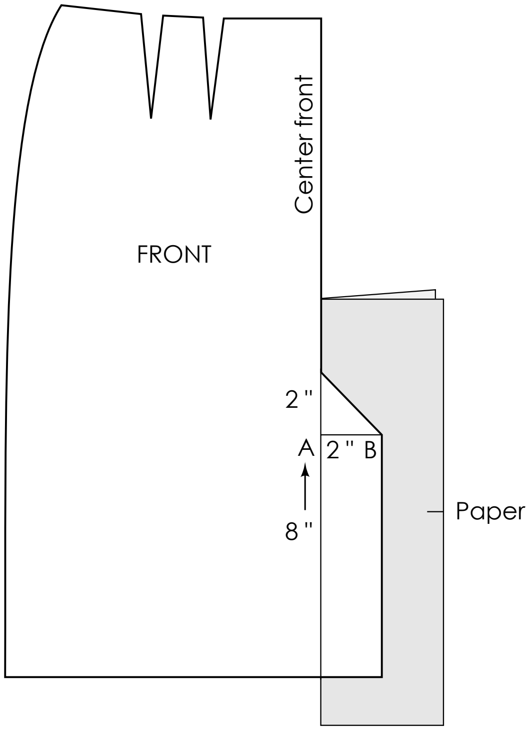

Center front
Fold of pleat
Hemline
Can be stitched, or unstitched as a vent

Figure 1



Inverted Box Pleat Without Backing

Figures 4a, b

- Mark A for placement, as shown.
- Square a line 3 inches out from A.
- Repeat at the hem.
- Notch 1 1/2 inches from A to indicate pleat underlay.

Figure 4a

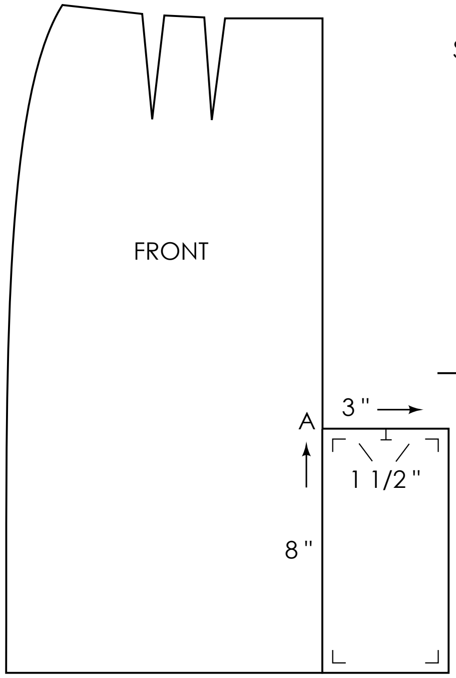
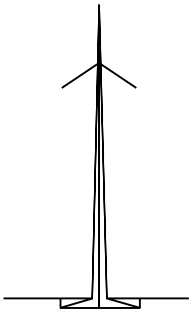


Figure 4b

Stitched Pleat



Inverted Box Pleat with Backing

Figure 1 Front or Back Skirt

- Mark A for pleat placement (example: 8 inches).
- Square out 2 inches from A. Label B. Repeat at the hem and connect.
- Mark 2 inches up from A and connect with B.
- Cut the pattern from paper.
- Place center line of the pattern on fold of the paper (shaded section) and trace the pleat.

Figure 2

- Remove and cut pleat backing.

Figure 3

- Fold the pleats and top stitch to hold pleat.

Figure 2

Pleat backing

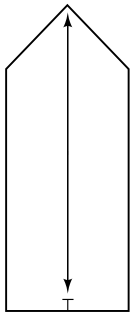
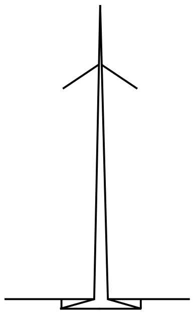


Figure 3

Stitched pleat



Double Inverted Box Pleat

Figures 5a, b

- Mark A for pleat placement, as shown.
- Pleat underlay determines the amount of width needed. Square from A and hem.
- Notch every 1 1/2 inches for pleat fold.

Figure 5a

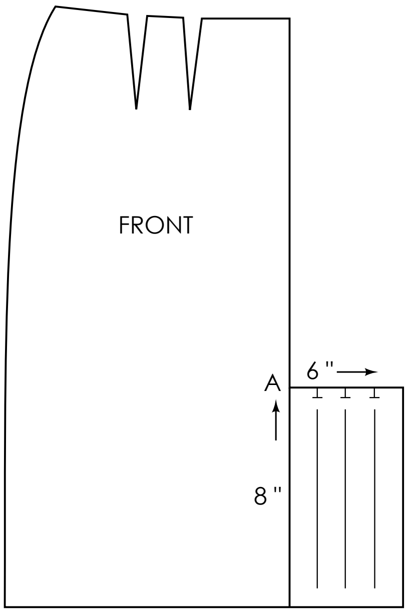
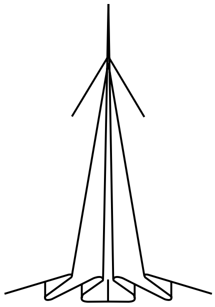


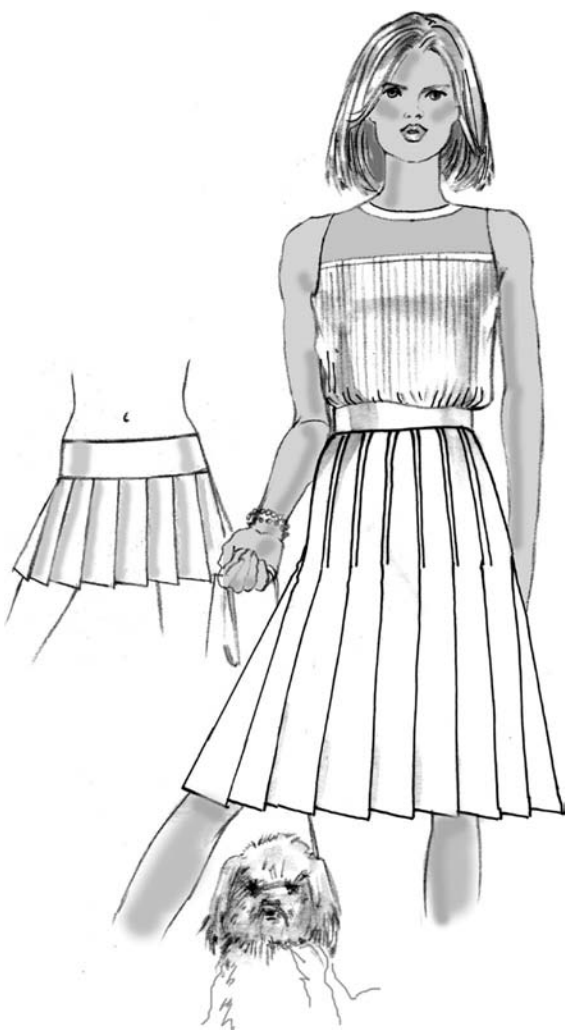
Figure 5b

Stitched Pleat



All-Around Pleated Skirt

The all-around pleated skirt can be developed by using the pleat formula, or it may be pleated by professional pleaters. Generally, it is less expensive for a manufacturer to send a skirt out for pleating than to have it done in the manufacturer's factory. Professional pleaters will conform any pleating arrangement to fit waist and hip measurements for all graded sizes and to any length desired. Some small firms will pleat fabric for those desiring a personal fit. (*Suggestion:* Contact yardage or notion departments for information about services available locally.)



Design Analysis

The sample skirt features 20 pleats that encircle the figure. Each pleat is stitched approximately 7 inches below the waist, using the pleat formula as a guide.

Pattern Plot and Manipulation

Measurements Needed

- (2) Waist ____
- (4) Hip _____
- Length ____

Example: 30-inch waist; 40-inch hip; length 26 inches plus 3 inches for hem and waist seams = 29 inches.

Pleat Formula

- Number of pleats (20 pleats)
- Depth of pleat (1 1/2 inches × 2 = 3-inch pleat underlay)
- Pleat spacing (divide the number of pleats [20] into the hip circumference [40] = 2-inch spacing

Figure 1 Planning Pleats

Always start the pleat series with the seam allowance (A), followed by the pleat depth (A to B)—forms one-half of the pleat. Continue with pleat space (B to C) and pleat underlay (C to D). Repeat the process until the next to the last pleat is formed (E to F). Mark for space (F to G) and end with pleat depth (G to H)—this completes the other half of the first pleat. Add to this seam allowance. (The seam is hidden in the center fold of the pleat.) If the pleat series is interrupted by a seam before completion, end with the pleat depth and begin with seam allowance and pleat depth on the joining piece.

Figure 1

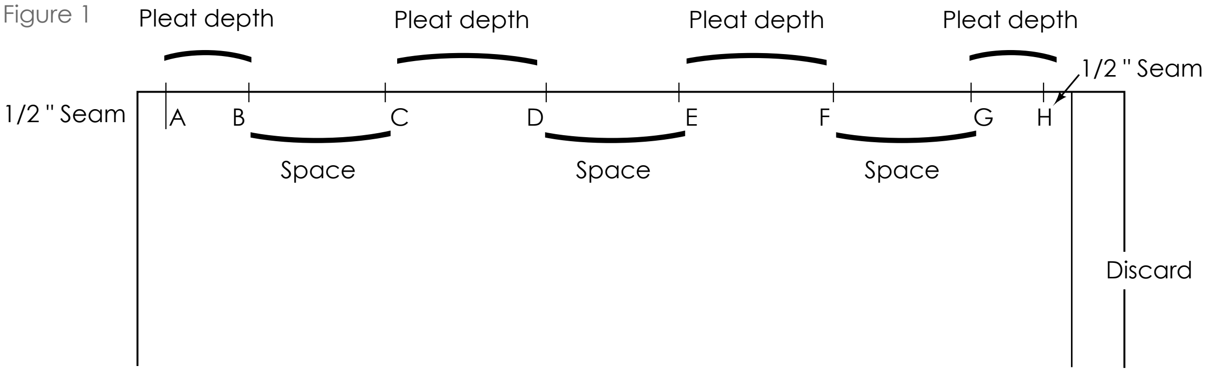


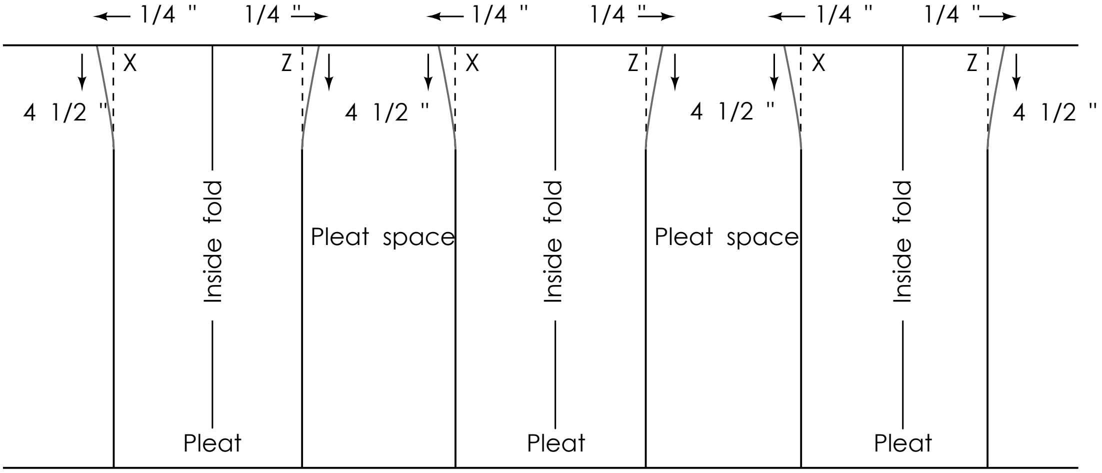
Figure 2 Adjusting Pleats to Waistline

Pleats are formed to fit the circumference of the hip, making the skirt too wide for the waist. To adjust the pattern, find the difference between the waist and hip measurements (example: 30-inch waist and 40-inch hip, the difference is 10 inches). Divide the difference by two times the number of pleats (each pleat has two sides; example: 10-inch difference by 40 pleat sides = 10/40 = 1/4 inch). This measurement represents the amount each pleat will absorb in order to fit the waist.

Use Measurement as Follows:

- Measure 1/4 inch from each side of the pleat (X and Z) at waist. Mark.
- Blend a curved line (new stitchline) from each mark to approximately 4 1/2 inches below waist. (Broken line indicates original fold line of pleat. Blue lines indicate the amount taken up by the pleats. Pleat may be top-stitched at varying lengths below the waist.)

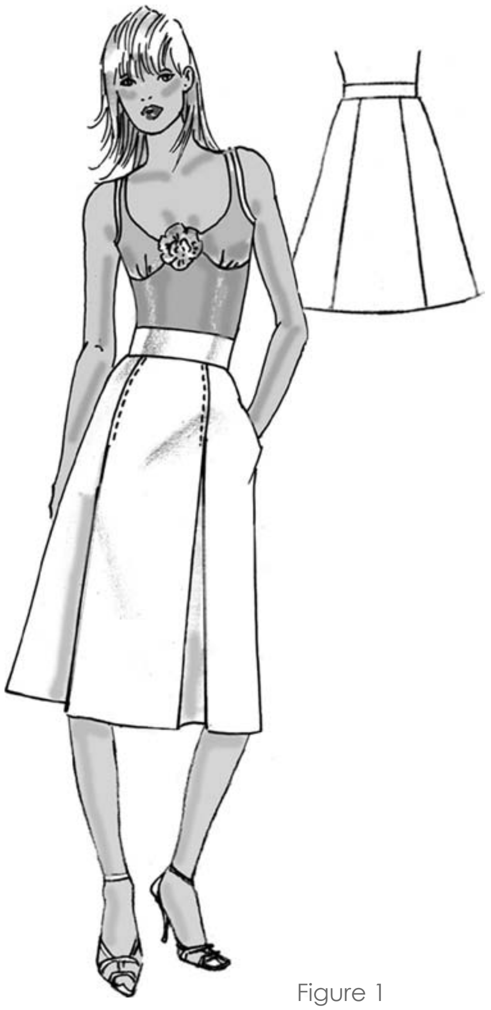
Figure 2



1/4 "
1/4 "
1/4 "
1/4 "
1/4 "
1/4 "
X
Z
X
Z
X
Z
4 1/2 "
4 1/2 "
4 1/2 "
4 1/2 "
Inside fold
Inside fold
Inside fold
Pleat space
Pleat space
Pleat
Pleat
Pleat

For waistband and zipper instructions, see sections on Preparing Zipper and Waistband and Basic Waistband earlier in this chapter.

Inverted Box-Pleated Skirt



Design Analysis

The skirt features inverted box pleats in front with slight A-line flare at side seams. The back is basic with A-line flare. Pleats can be either stitched (as shown) or unstitched. See sections entitled Preparing Zipper and Waistband and Basic Waistband earlier in this chapter for waistband and zipper instructions.

Pattern Plot and Manipulation

Figures 1, 2

- Trace basic front and back skirt.
- Draw a tentative line from the dart point to hem, parallel to center (broken line), and mark 1/2 inch. Label B. Draw a line from B to the dart point. Label A (pleat guide).
- Measure out 2 inches at side seam for A-line silhouette. Draw a line to the outermost part of the hip. Blend hemline. (See Figures 3 and 4, within the Flared Skirts section earlier in this chapter, as a guide.)
- Cut from paper.

Figure 1

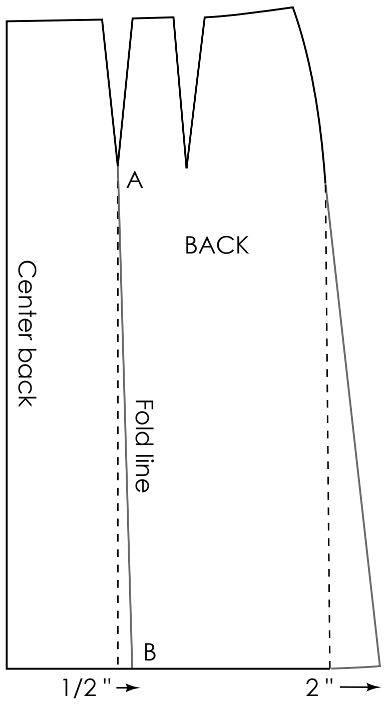


Figure 2

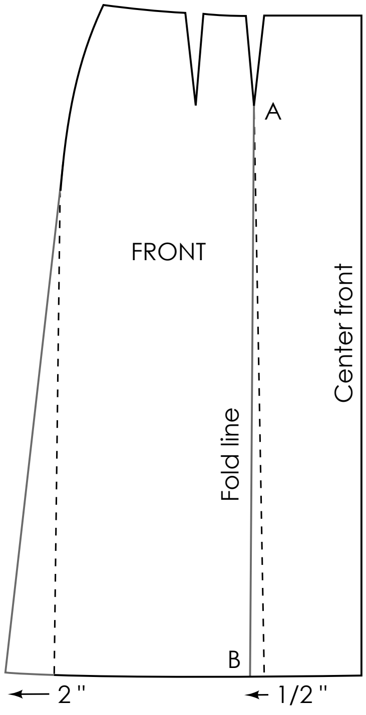


Figure 3

- Place pattern on paper and trace the dart leg (A), ending at point B (shaded area).
- Remove the pattern.
- Measure 3 inches from dart leg (A) and 6 inches from point B. Draw a line. Label it C–D.
- Repeat these measurements for E and F.
- Draw a center line up from point A.

Figure 4

- Fold the A–B line to the C–D line. Crease (broken line shows pleat underlay).

Figure 3

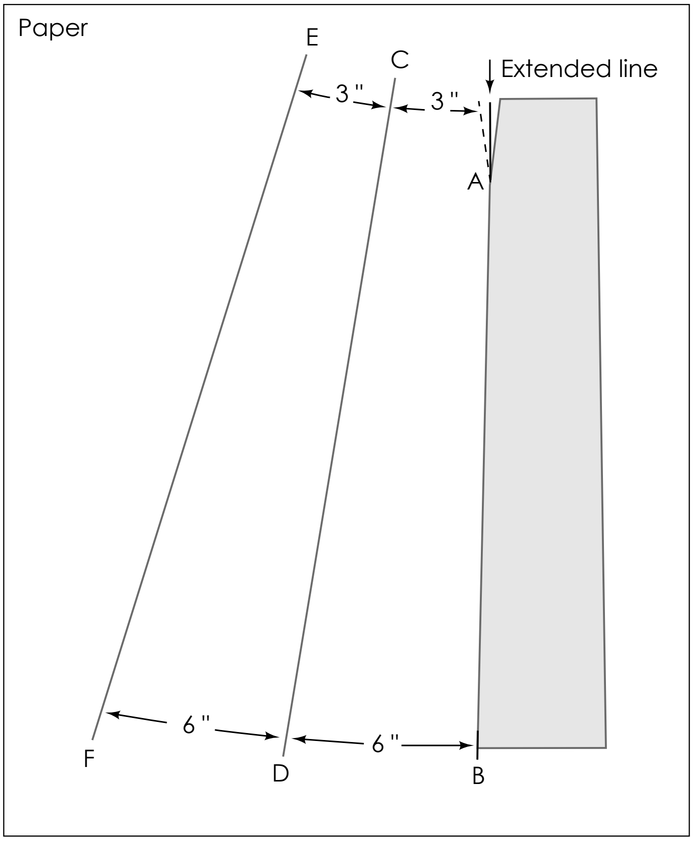

Paper
E
C
Extended line
3 "
3 "
A
6 "
6 "
F
D
B

Figure 4

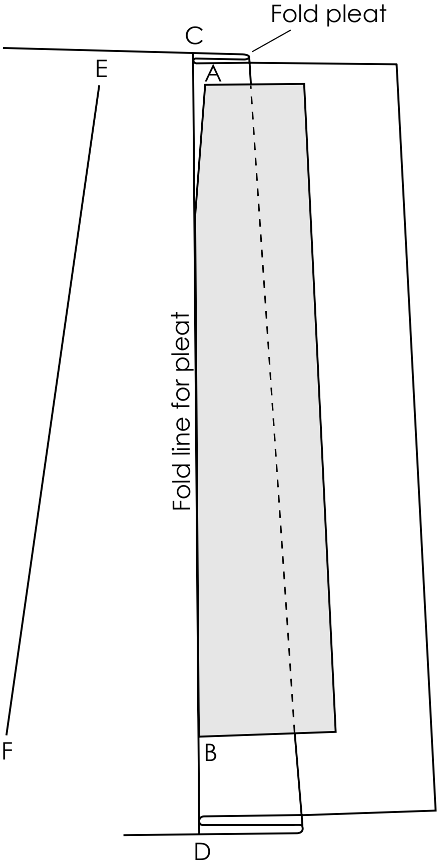

Fold pleat
C
E
A
Fold line for pleat
F
B
D

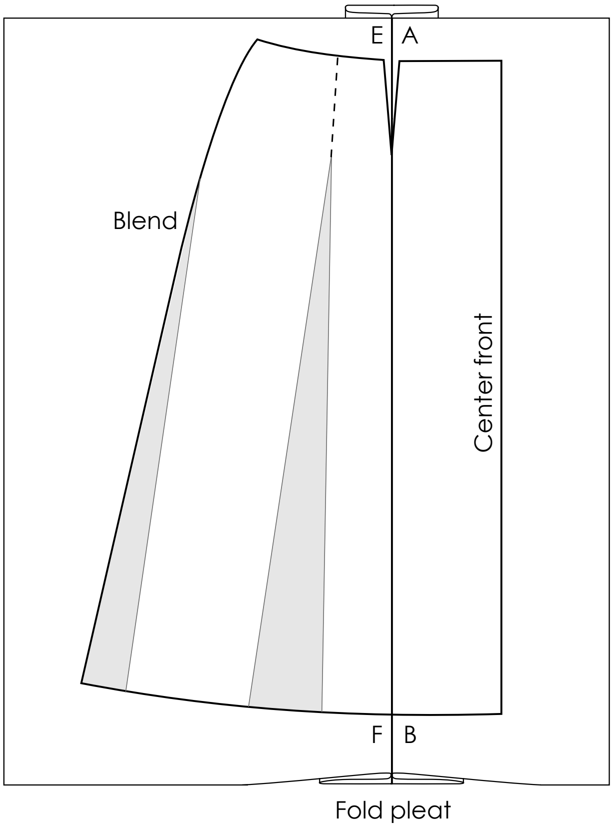
Figure 5

- Fold the E–F line to the A–B line. Crease.

Working Pattern Modification

- Before tracing the remaining pattern, cut a slash line from hemline to, not through, dart point. Close the dart. Tape.
- Place the pattern on the draft, matching center front line. Trace the remaining pattern (shaded area). Remove the pattern.
- With a tracing wheel, trace across the pleats at the waist and hemline. Seams can be added at this time (not illustrated). Open the pattern, pencil in perforated marks, and blend the hem.

Figure 5



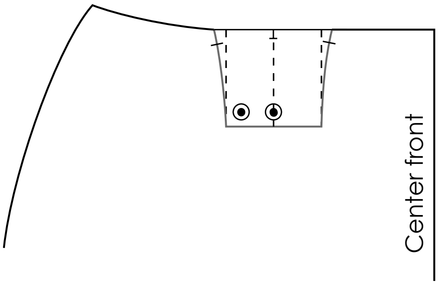
Methods for Stitching Darts

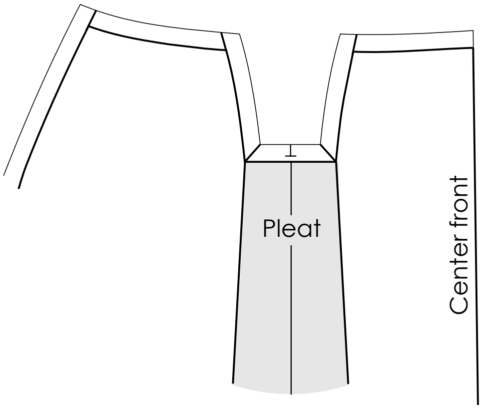
Method 1

- Draw dart legs slightly curved.
- Notch the dart legs and notch at center.
- Place punch and circles 1/8 inch in and up from the corner and up 1/8 inch at the center of the pleat.

Method 2

- Trim excess to within 1/2 inch of the dart legs (seam allowance). Add 3/4 inch for hem.
- Notch the corners and notch at the center fold (shaded area indicates the pleat).
- Cut from the paper and retrace with center front on fold. Add grainlines. Complete for a test fit.





GODETS

Godets are generally triangular-shaped wedges of fabric placed between seams or into slits or used as a replacement for cutout sections (of varying shapes). Godets provide additional stride room or may be added as a design feature. They are created singularly or in a series around the skirt. They may extend evenly to the hemline or be graduated in length. Godets may be placed on a bodice, jacket, blouse, sleeve, and dress.

Basic Godet

Design Analysis: Designs 1 and 2

Design 1 is an example of single godets inserted in gore panels. The godet can be in-one with the skirt (see Figure 1), Design 2.

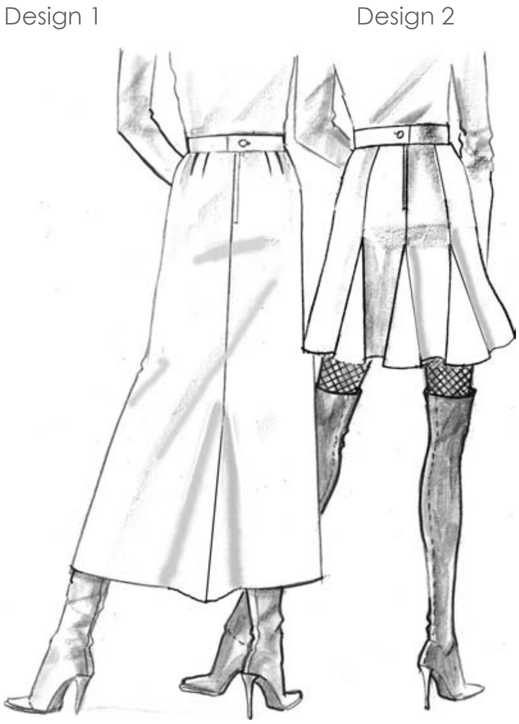
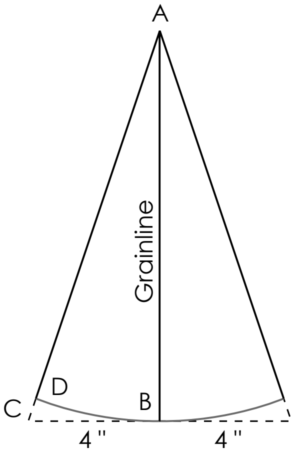


Figure 2



Pattern Plot and Manipulation

Figure 1 In-One with Skirt

- Mark godet at a desired placement (example: 10 inches) and label A–B.
- Extend the hemline to a desired width (example: 4 inches). Label C. Connect A to C, marking a point on the line equal to the A–B length.
- Add 3/4 inch for the zipper, then jog back to a 1/2-inch seam, as shown.
- Blend with hemline.

Figure 1

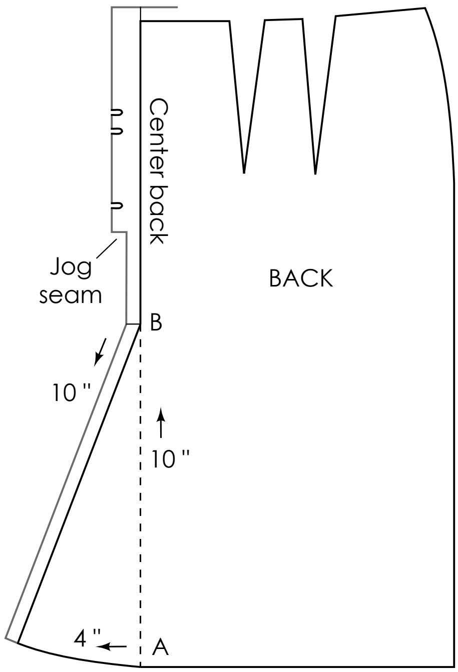


Figure 2 Attached Godet

- A–B = godet length (also marks grainline).
- B–C = godet width (example: 4 inches), squared from B.
- Draw line from C to A.
- A–D = A–B length. Mark.
- Blend hemline.
- Repeat for other side.

Godet Variations

Godets may be curved, squared, or pointed as a half circle, a three-quarter circle, or a full circle. Use general instructions and illustrations as a guide for developing godet variations. See sections entitled Preparing Zipper and Waistband and Basic Waistband earlier in this chapter for waistband and zipper instructions.

Pattern Plot and Manipulation

- Plot pattern for cut-out design.
- Cut from paper.
- Use cut-out section for spreading.
- Draw slash lines.
- Cut slash lines to, not through, the top of the section.
- Spread for flare. Retrace.

Design 1

- See Figures 1, 2, and 3.

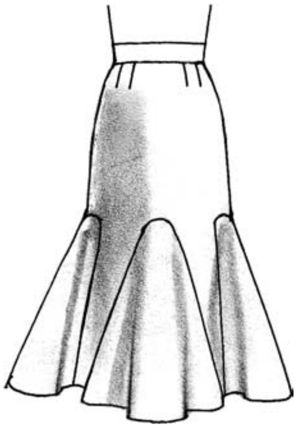


Figure 1

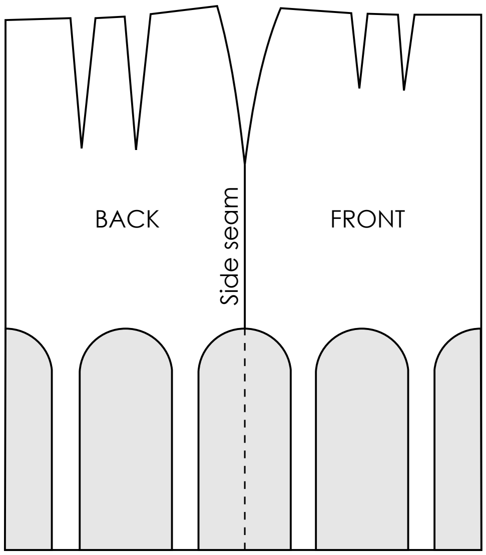

BACK
Side seam
FRONT

Figure 2

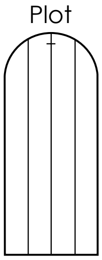
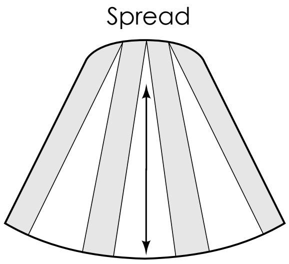


Figure 3



Design 2

- See Figures 1, 2, and 3.

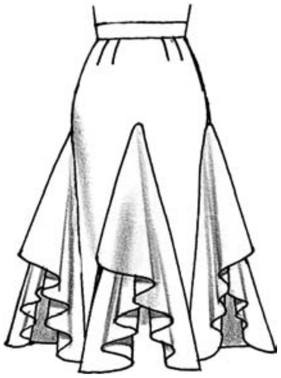


Figure 1

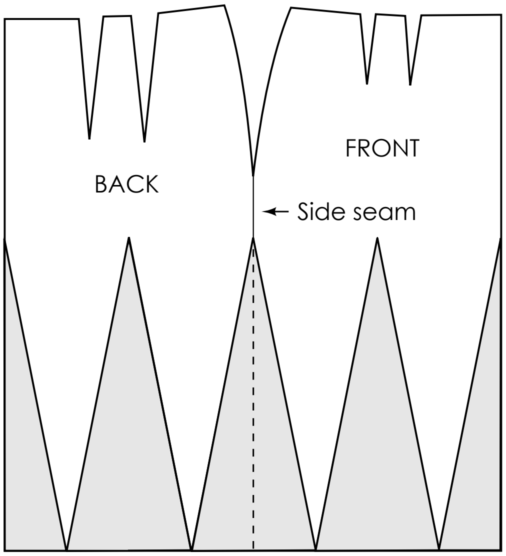

BACK
FRONT
Side seam

Figure 2

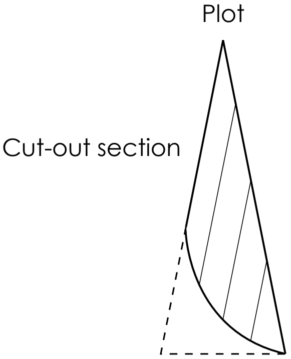
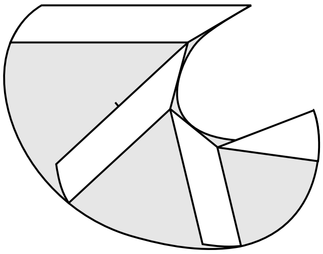

Plot
Cut-out section

Figure 3



WRAP SKIRT

A basic, A-line, flared, or gathered skirt can be developed into a wrap skirt by extending the center front. The hemline may be squared (Design 1), curved (Design 2), or of any other variation desired. Wrap skirts may have side seams or may be developed all-in-one. Belts may be buttoned (Design 1) or tied (Design 2). Designs are based on an A-line flare skirt.

Wrap Skirt with Side Seam

Pattern Plot and Manipulation

Figure 1

- Trace the front skirt. Extend a 6-inch line out from center front at the waist and hem (extension and fold-back for facing).
- Notch center front waist and 3 inches out from the waist (indicates the fold line for facing).

Figure 1

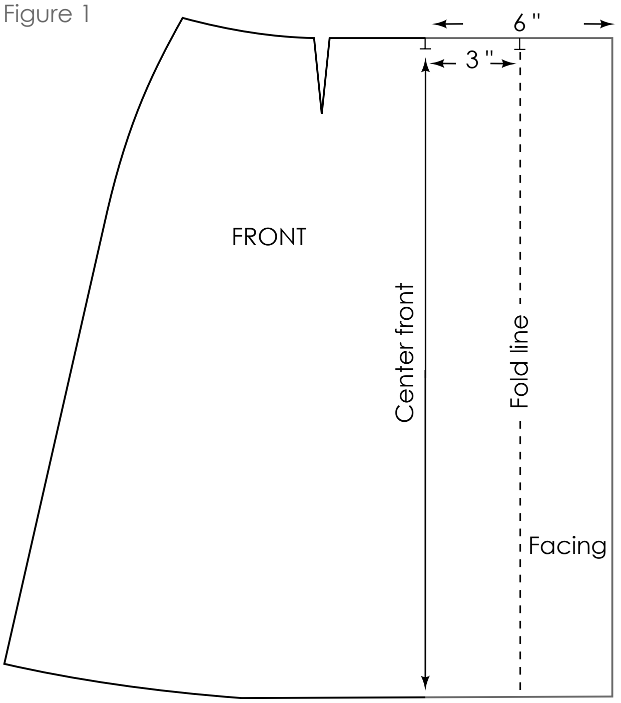
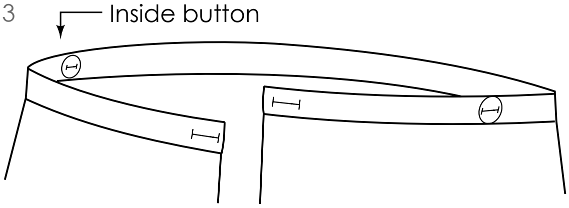


Figure 3 Waistband Construction

- Belt extends to the full length of the waist, less 1/2 inch. Mark button and buttonhole. Underneath belt is buttoned and not seen.

Figure 3



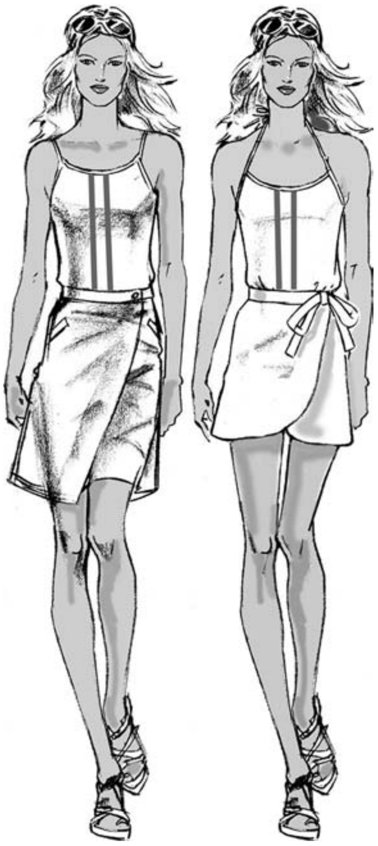
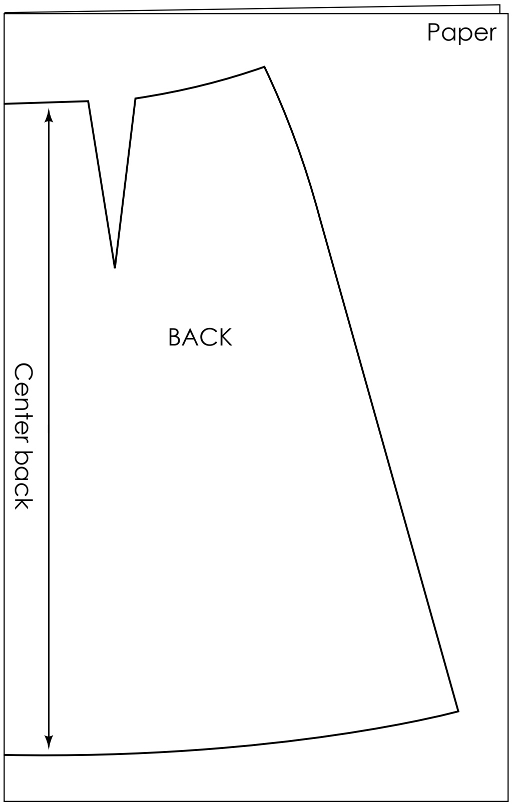

Design 1 Design 2

Figure 2

- Trace back skirt on the fold.

Figure 2



All-in-One Wrap Skirt

Figure 1

- Align the side seams of the front and back skirt (straight or A-line). A dart is formed at the side waist.
- Add desired extension for the wrap (example: equal to distance from center front to dart). Trace.
- Draw a curved hemline, as illustrated.
- For center back, add 1/2-inch seam.

Figure 1

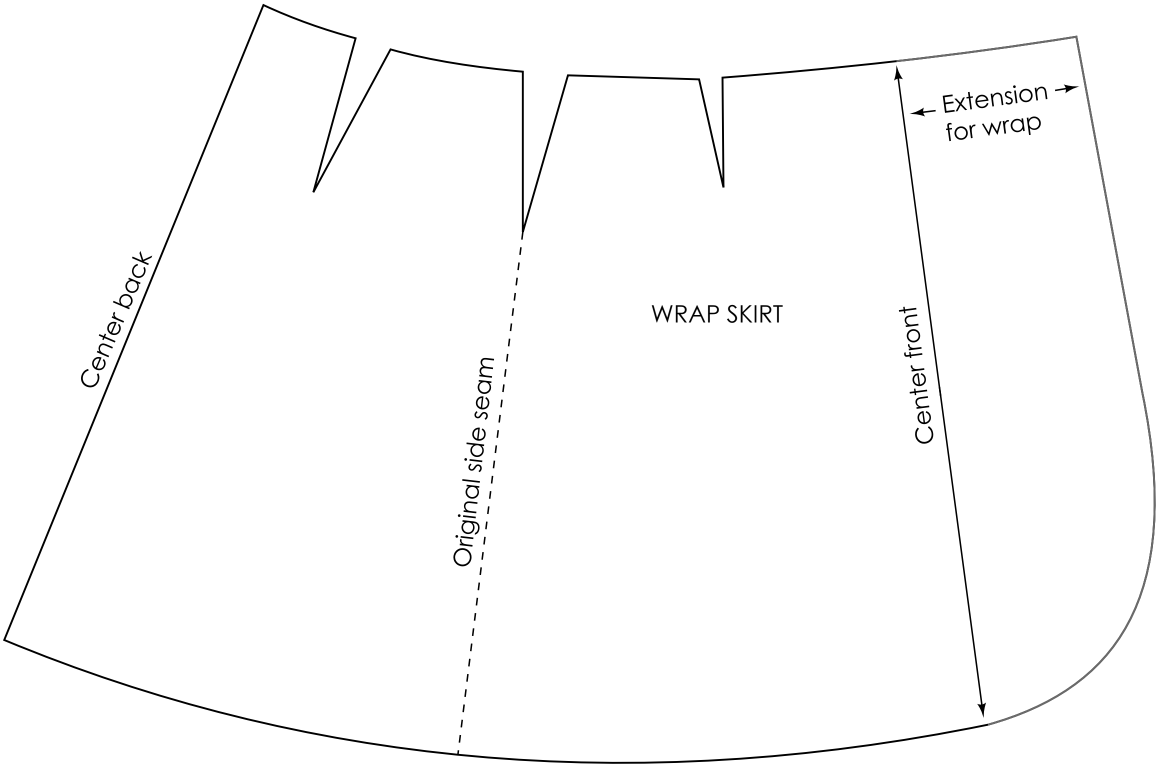

Extension for wrap
WRAP SKIRT
Center back
Original side seam
Center front

Figure 2 Facing

- Trace skirt from waist to the curve of the hemline.
- Width = 1 1/2 inches to 3 inches.

Figure 2

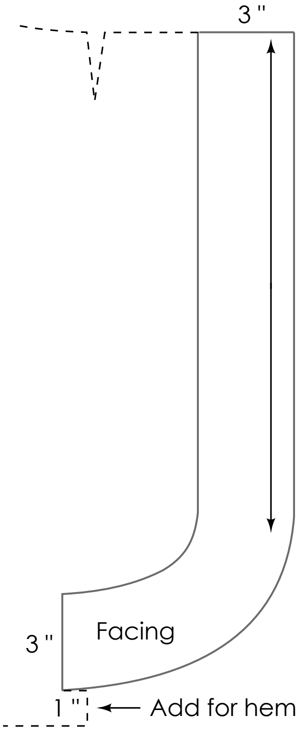
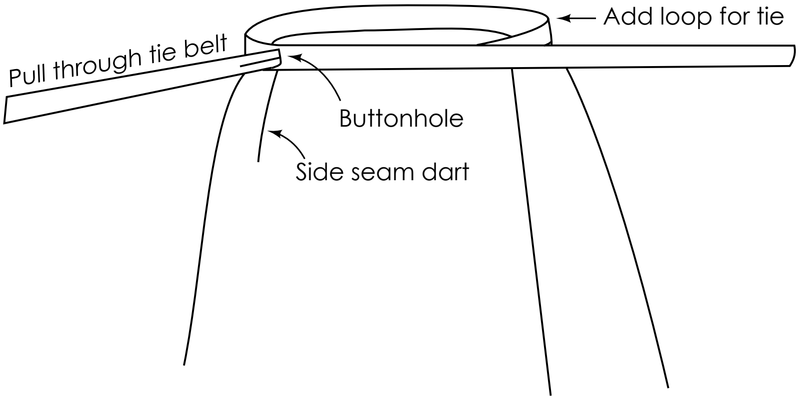

3"
Facing
3"
1"
Add for hem

Figure 3 Belt Construction

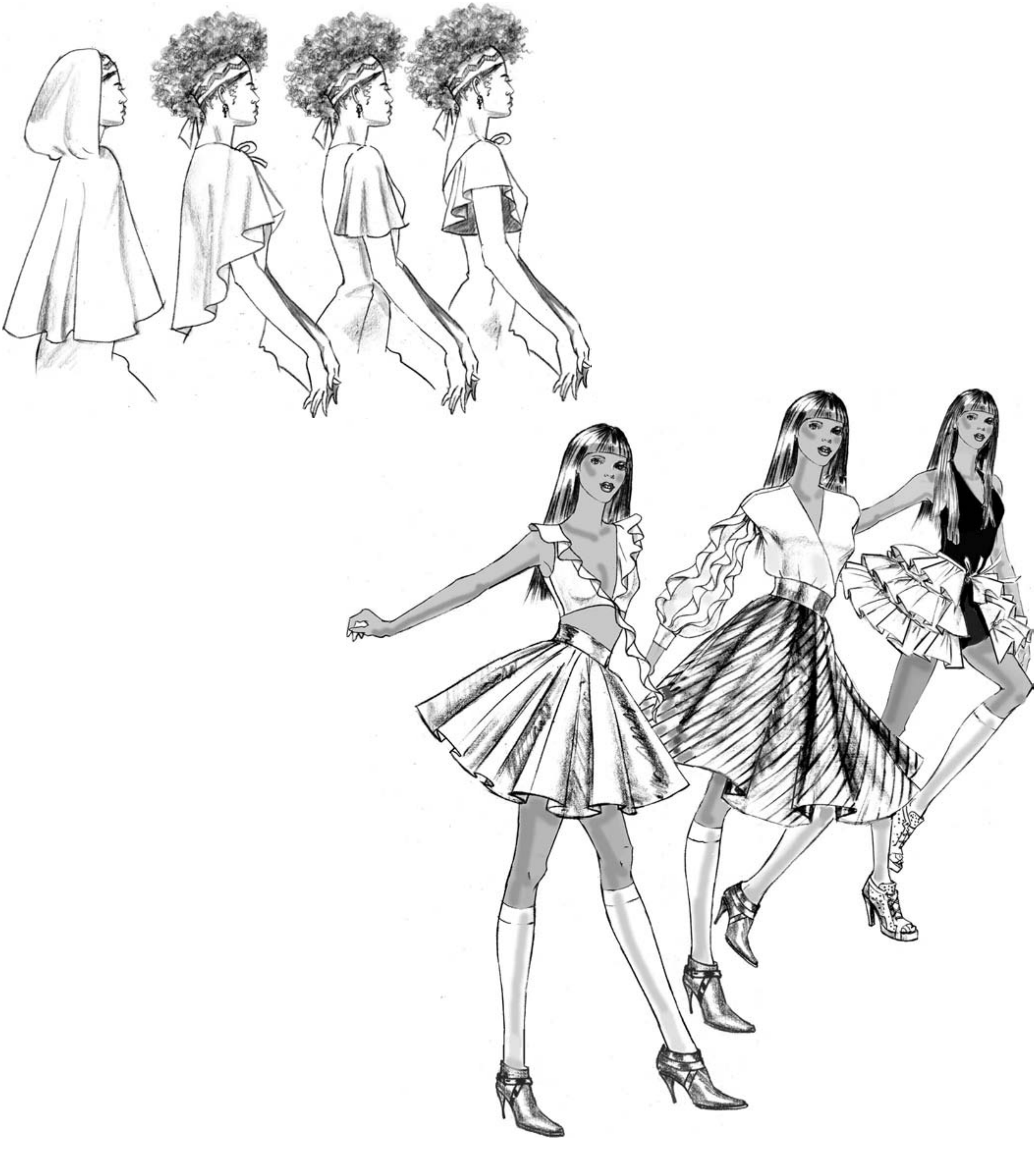
- Belt extends 25 inches beyond length of the waist at each end for tie.
- Place buttonhole in the waistband at right side of the skirt for tie to pull through.

Figure 3


Add loop for tie
Pull through tie belt
Buttonhole
Side seam dart

CIRCLES, PEPLUMS, AND CASCADES

As creative elements, circles have always intrigued designers. Circles can be designed as circular skirts, dresses, sleeves, collars, peplums, or capes and as cascades falling from cutout necklines or inserted into sleeves and other types of garments. Designs are based on a full circle or part of a circle, having a rounded, a pointed, or an uneven hemline. Circles used in design have an inner circle (the part that is stitched to a joining seam) and an outer circle (the hemline). The radius is based on the length of the seam to which it is stitched. Skirts provide the sample of how the Radius Circle Chart is to be used. A tool for drawing the circles is included. A discussion about grainline placement and its effect on the fall of the flare is also included.

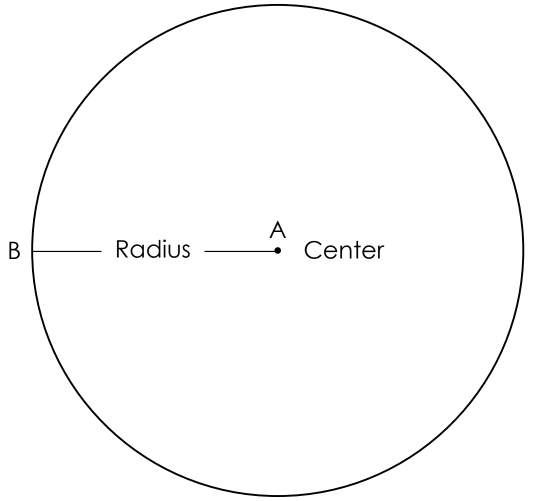


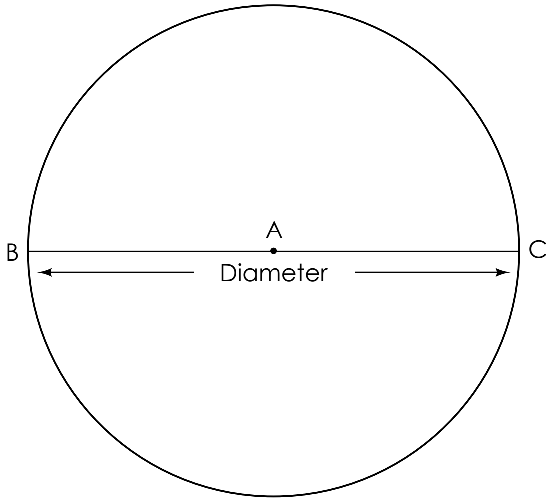
Terminology

Circle center. The point that is equidistant to all points out from itself.

Radius. The distance from circle center (point A) to the circle's edge (point B).

Diameter. The distance across the center of the circle. The diameter of a circle (B to C) is always twice the radius (A to C or A to B).





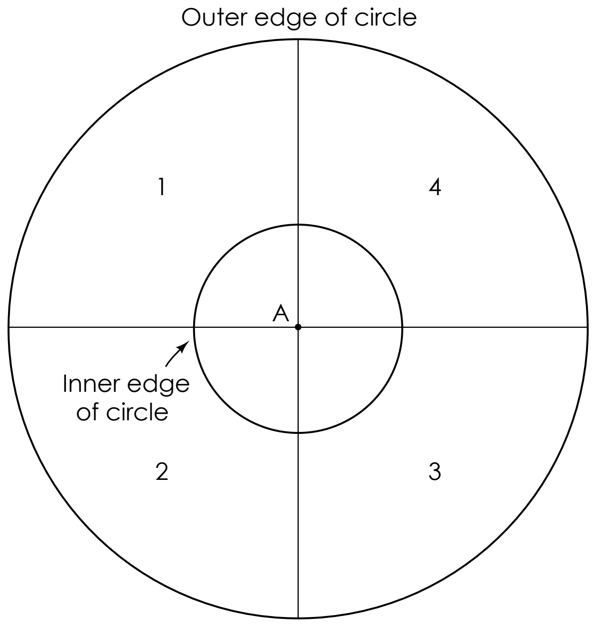
Circle Within a Circle

A circle will have a circle within a circle for the purpose of designing. The inner circle is stitched to the joining seam of the garment, and the outer circle is the hemline. The radius measurement establishes the circumference (distance) around the inner and outer circles. The length of the seam to which the inner circle is attached determines the radius measurement. The Radius Circle Chart see Skirts with gathered Waistlines section earlier in this chapter. Provides the measurements; Other methods are included.

Parts of a Circle

Think of the circle as having four quarter-sections. Sections of the circle are removed from the full circle to decrease hemline sweep.

A circle skirt is titled by the number of its quarter-sections—a full circle, three-quarter circle, half circle, or quarter circle. Each circle skirt is illustrated.



Radius Chart for Circle Skirts and Cascades

Purpose of the Radius Measurement

The chart provides a quick method for finding the radius of the inner circle for the skirt or cascade.

The total measurement created by the selected radius will equal the *length* of the seam to which it is stitched.

How to Use the Circle/Cascade Chart

Column 1—Length Measurements

Measure the length of the seam to which the inner circle is stitched. For measurements in between, select the closest whole number.

Columns 2, 3, 4, 5—the Radius Measurements for the Circle Skirt of Choice

Using the length measurement from column 1, go across the chart to the column of the chosen skirt for the radius measurement. Subtract 1/2 or 1/4 inch for seam allowance.

The minus (−) and plus (+) symbols represent 1/16 inch added to or subtracted from the measurement.

Length of the Skirt (or Width of a Cascade), as Desired

Other Methods for Developing Circularity

- To find the radius, divide the measurement from Column 1 by the fractions given.

  1/6—full-circle skirt

  1/5—three-quarter circle skirt

  3/4—half-circle skirt

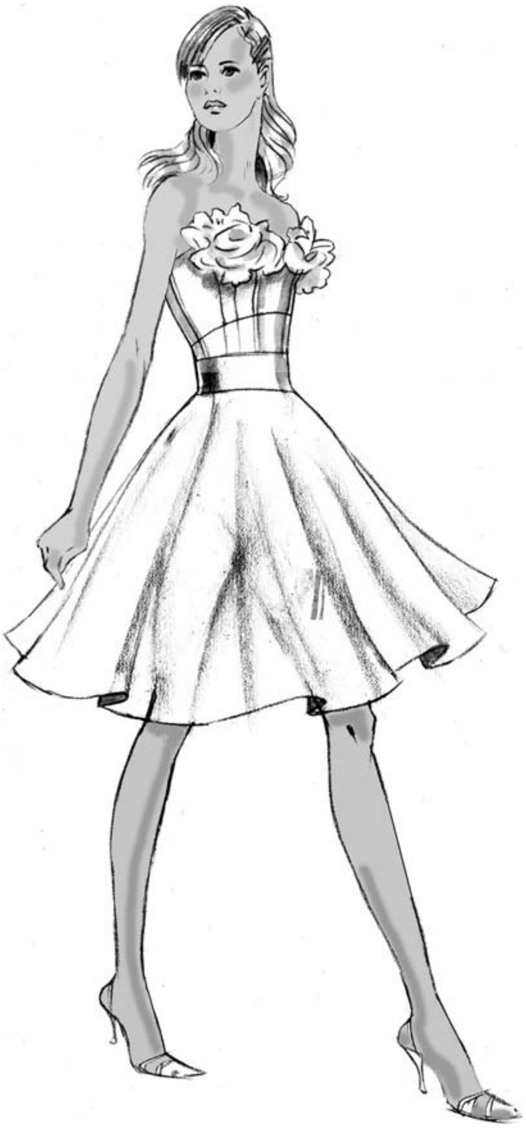
  2/3—quarter-circle skirt
- Slash and spread the basic skirt.

The use of the Radius Chart and the circle tool is illustrated in the development of the following circle skirts.

Column 1 Length	Column 2 1/4-Circle	Column 3 1/2-Circle	Column 4 3/4-Circle	Column 5 Full-Circle
1	0 5/8	0 1/4^{+}	0 1/4^{-}	0 1/8^{+}
2	1 1/4^{+}	0 5/8	0 1/2^{-}	0 3/8^{-}
3	1 7/8^{+}	0 7/8^{+}	0 5/8	0 1/2^{-}
4	2 1/2^{+}	1 1/4^{+}	0 7/8^{-}	0 5/8
5	3 1/8^{+}	1 5/8^{-}	1 1/8^{-}	0 3/4^{+}
6	3 3/4^{+}	1 7/8^{+}	1 1/4^{+}	0 7/8^{+}
7	4 1/2^{-}	2 1/4^{-}	1 1/2	1 1/8
8	5 1/8^{-}	2 1/2^{+}	1 5/8^{+}	1 1/4^{+}
9	5 3/4^{-}	2 7/8	1 7/8^{+}	1 3/8^{+}
10	6 3/8	3 1/8^{+}	2 1/8	1 5/8^{-}
11	7	3 1/2	2 3/8^{-}	1 3/4
12	7 5/8	3 3/4^{+}	2 1/2^{+}	1 7/8^{+}
13	8 1/4^{+}	4 1/8	2 3/4	2 1/8^{-}
14	8 7/8^{+}	4 1/2^{-}	2 7/8^{+}	2 1/4^{-}
15	9 1/2^{+}	4 3/4^{+}	3 1/8^{+}	2 3/8
16	10 1/8^{+}	5 1/8^{-}	3 3/8^{+}	2 1/2^{+}
17	10 3/4^{+}	5 3/4^{+}	3 5/8^{-}	2 3/4^{-}
18	11 1/2^{-}	5 3/4^{+}	3 3/4^{+}	2 7/8
19	12 1/8^{-}	6 1/8	4 1/8^{-}	3
20	12 3/4^{-}	6 3/8	4 1/4	3 1/8^{+}
21	13 3/8	6 5/8^{+}	4 1/22	3 3/8^{-}
22	14	7	4 5/8^{+}	3 1/2
23	14 5/8^{+}	7 1/4^{+}	4 7/8	3 5/8^{+}
24	15 1/4^{+}	7 5/8	5 1/8^{-}	3 3/4^{+}
25	15 7/8^{+}	7 7/8^{+}	5 1/4^{+}	3 7/8^{+}
26	16 1/2^{+}	8 1/4^{+}	5 1/2^{+}	4 1/8
27	17 1/8^{+}	8 5/8^{-}	5 3/4^{-}	4 3/8^{-}
28	17 3/4^{+}	8 7/8^{+}	5 7/8^{+}	4 1/2^{-}
29	18 1/2^{-}	9 1/4^{-}	6 1/8^{+}	4 5/8
30	19 1/8^{-}	9 1/2^{+}	6 3/8	4 3/4^{+}
31	19 3/4	9 7/8	6 5/82	4 7/8^{+}
32	20 3/8	10 7/8^{+}	6 3/4^{+}	5 1/8^{-}
33	21	10 1/2	7	5 1/4
34	21 5/8^{+}	10 3/4^{+}	7 1/4^{-}	5 3/8^{+}
35	22 1/4^{+}	11 1/8	7 1/2^{-}	5 1/2^{+}
36	22 7/8^{+}	11 1/2^{-}	7 5/8	5 3/4^{-}
37	23 1/2^{+}	11 3/4^{+}	7 7/8^{-}	5 7/8
38	24 1/8^{+}	12 1/8^{-}	8 1/8^{-}	6 1/8^{-}
39	24 7/8^{-}	12 3/8	8 1/4^{+}	6 1/4^{-}
40	25 1/2^{-}	12 3/4^{-}	8 1/2	6 3/8
41	26 1/8^{-}	13 1/8^{-}	8 5/8^{+}	6 1/2^{+}
42	26 3/4	13 3/8	8 7/8^{+}	6 5/8^{+}
43	27 3/8	13 5/8^{+}	9 1/8	6 7/8^{-}
44	28	14	9 3/8^{+}	7
45	28 5/8^{+}	14 1/4^{+}	9 1/2^{+}	7 1/8^{+}
46	29 1/4^{+}	14 5/8^{+}	9 3/4	7 3/8^{-}
47	29 7/8^{+}	14 7/8^{+}	9 7/8^{+}	7 1/2^{-}
48	30 1/2^{+}	15 1/4^{+}	10 1/8^{+}	7 5/8
49	31 1/8^{+}	15 5/8^{-}	10 3/8^{+}	7 3/4^{+}
50	31 7/8^{-}	15 7/8^{+}	10 5/8	7 7/8

Full-Circle Skirt

The formula applies to all types of circles and includes seam allowances. A full-circle skirt is the first example. Grainline placement for controlling the location of flares is given within the relative to grainline placement the Fall of the Flare section later in this chapter. A tool for drawing circles is illustrated.



Formula

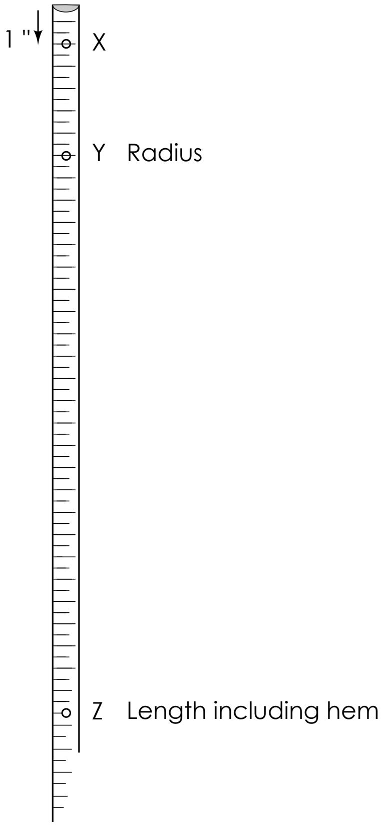
1. Waist measurement = 26 inches.
2. Number of seams = 2 seams (add 2 inches, as illustrated) or 4 seams (add 4 inches).

   Total = 28 inches.
3. Subtract 1 inch for stretch = 27 inches.*

   Locate this measurement (27) in column 1 and go across to column 5, full-circle. The radius measurement is 4 3/8 inches, less 1/2 inch for seam allowance.
4. Radius finished measurement is 3 7/8 inches.
5. Length = 25 inches plus 1 inch for hem.

*Test the stretch of chiffon and crepe by cutting the radius from a quarter-section of the skirt with a length of 5 inches. Stretch across the ruler. Subtract the amount of stretch from the measurement.

Figure 1



Circle Tool

Figure 1

Use an old tape measure and punch holes through it (with an awl) at the locations of the radius measurement and hemline, starting the measurement 1 inch down from the tape top.

X = starting point.

X to Y = radius.

Y to Z = skirt length, plus hem.

Pattern Plot and Development

Half a circle skirt is drafted using the radius measurement. The pattern is cut twice to complete the circle skirt.

Measurements Needed

Waist and skirt length: Use personal measurements or follow the example given in the formula.

Paper Needed

Cut paper 30 inches × 60 inches and fold in half.

Figure 1

Corner fold of paper is X.

X to Y = Radius measurement. Mark.

Y to Z = Skirt length (include the hem allowance).

Circle tool—with a push pin, secure the prepared tape measure at (X) the 1-inch mark. Align the tape measure at the fold and place a pencil through the hole (Y). Draw the radius and (Z) draw the hemline.

Figure 1

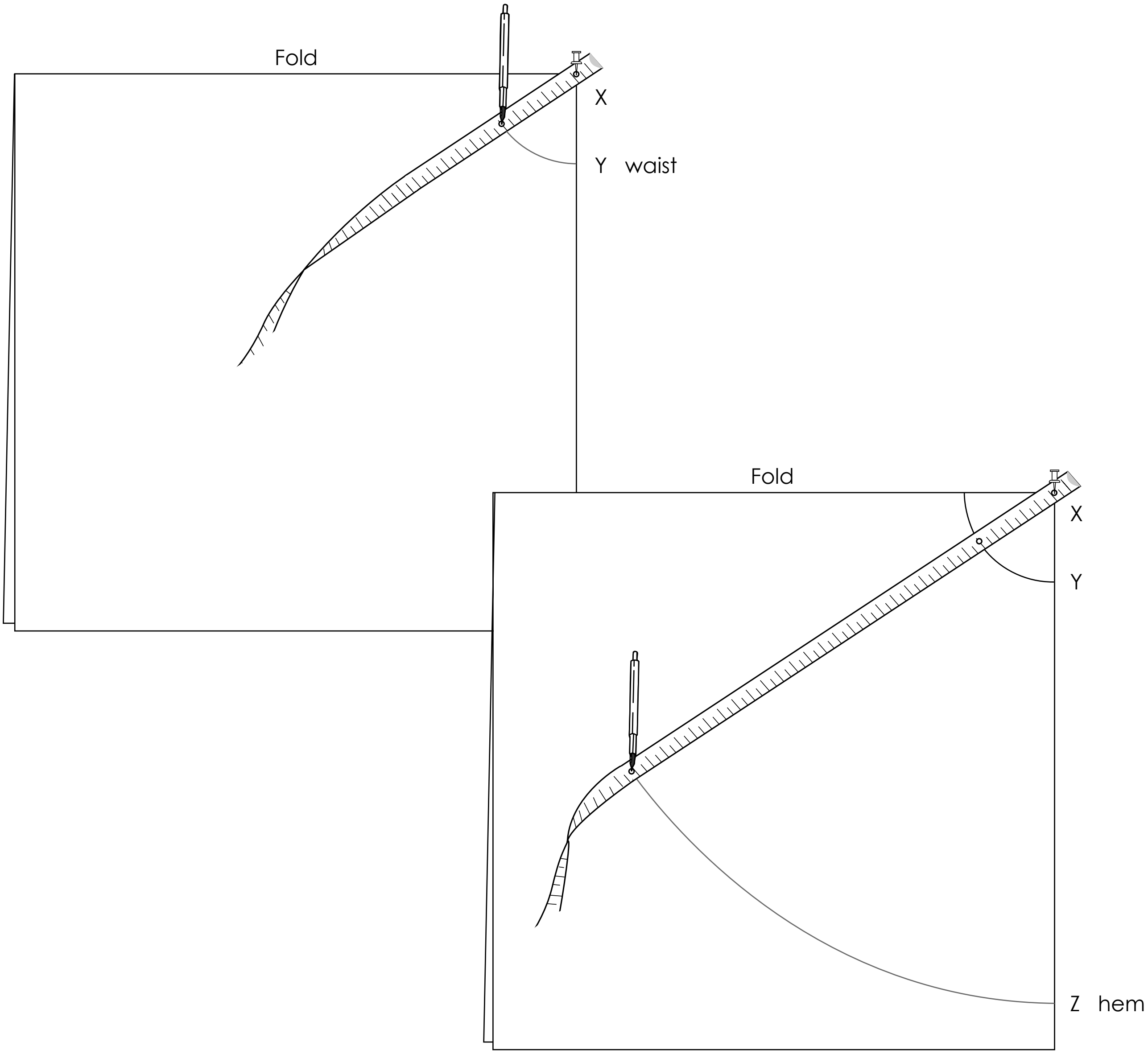


Figure 2
Optional: To flatten the flare at center front, raise 1/4 inch. The back can be lowered 1/4 inch.

- Cut the skirt from the paper and make a duplicate copy to complete the circle.

Figure 2

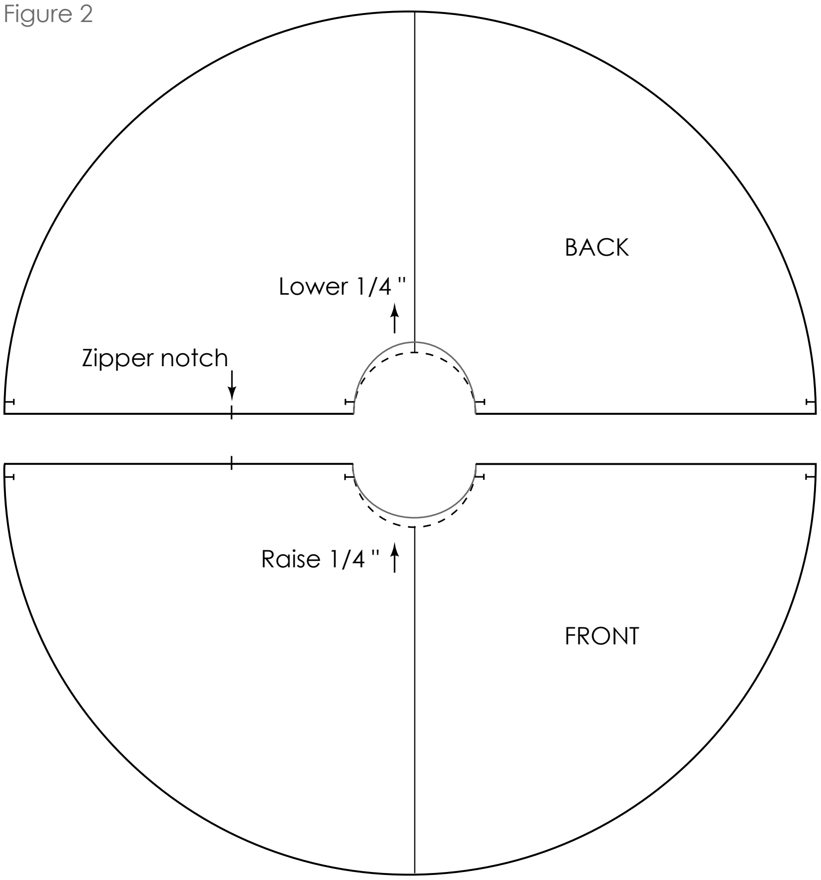

BACK
Lower 1/4 "
Zipper notch
Raise 1/4 "
FRONT

Figure 3

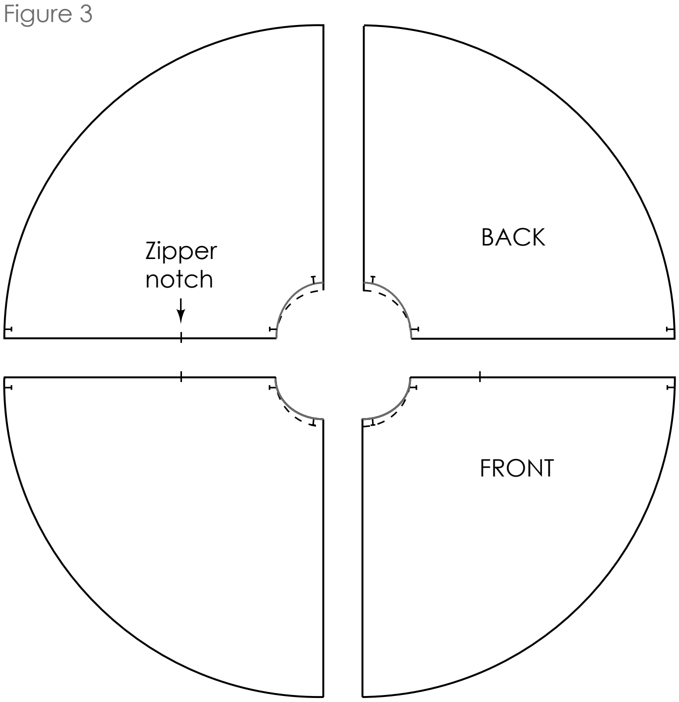

Zipper notch
BACK
FRONT

Figure 3 Example Skirt with Four Seams
The location of the straight grainline can be changed to control the fall of flares of skirt having circularity. See next page.

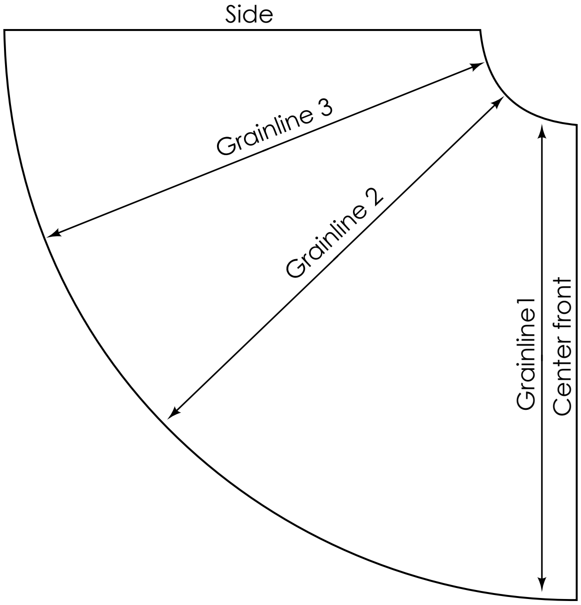
Grainline Placement Relative to the Fall of the Flare

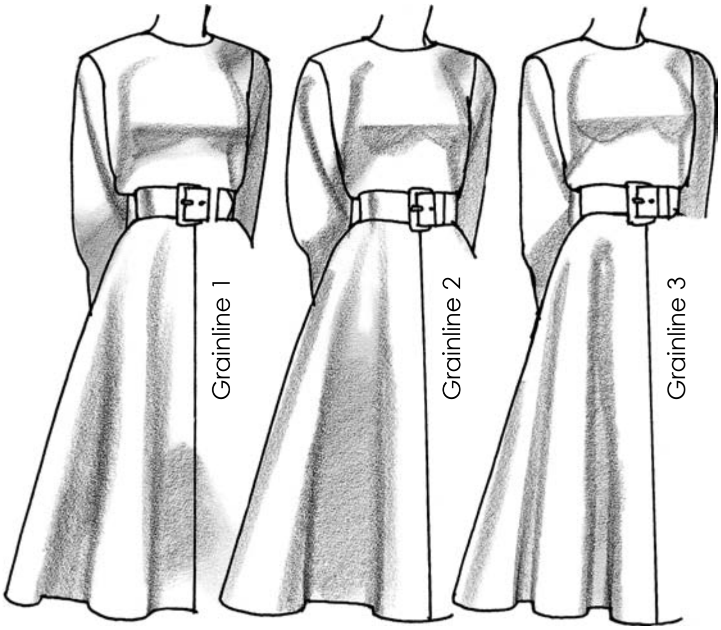
Flares tend to fall gracefully wherever the grain is on the bias. Changing the grainline can control where the bias and flare will fall.

Grainline 1—flares fall toward the side and side front—straight grainline.

Grainline 2—flares fall to center front and toward side seam—placed between front and side seams.

Grainline 3—flares fall at center, side seam, and in between placed 3/4 inch from center.

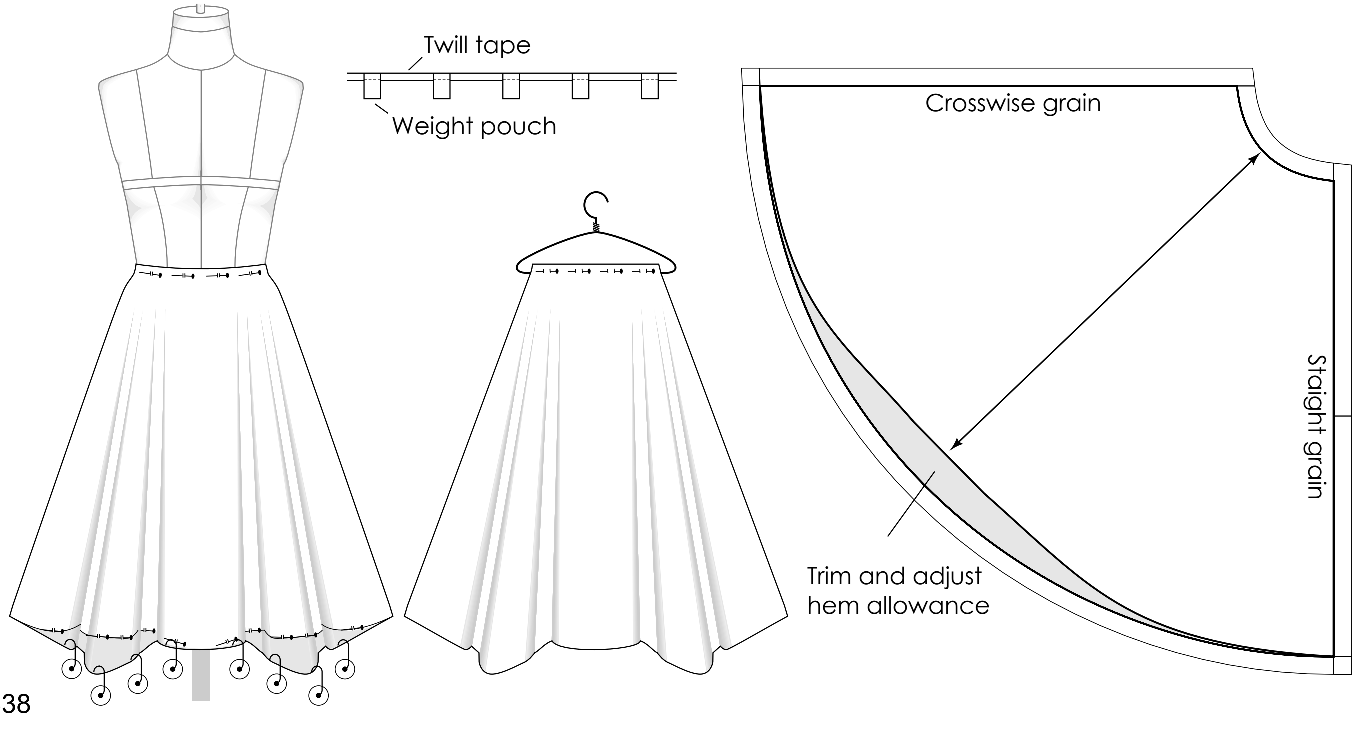

Side
Grainline 3
Grainline 2
Grainline1
Center front


Grainline 1
Grainline 2
Grainline 3

Hemline Adjustments

Skirts with circularity should be hung *overnight* from a form or hanger to allow the bias to fall. Mark the hemline while the skirt is on a form or model. Measure up from the floor to mark the preferred length. Blend the marked hemline and trim the overhang. Place the overhang on the skirt pattern, trace and blend. Add hem allowance. Trim excess.

To help pull the bias, pin drapery or fishing weights to the hemline. Weights can be made by stitching fabric pouches filled with marbles, pebbles, or other weights. Each pouch is equal in weight and stitched 4 inches apart on 2 yards or more of twill tape.


Twill tape
Weight pouch
Crosswise grain
Staight grain
Trim and adjust
hem allowance

Three-Quarter Circle Skirt

A quarter-section of the full circle is removed. This results in less hemline sweep but an increase in the radius measurement to compensate for the loss of the section. The skirt can have one seam in back or can be cut in two or more panels. See the choice of grainline placements on previous page.

Pattern Plot and Manipulation

Formula

Waist measurement __________

Add seam allowances __________

Subtract 1 inch for stretch __________

Total __________

- Locate this measurement in Column 1 of the Radius Chart and go across to Column 4, 3/4-circle.
- If using the sample measurement of 27 inches, the radius is 5 3/4 inches, less 1/2 inch; the radius measurement will be 5 1/4 inches. Length plus hem, as desired ______________.

Paper Needed

Cut a 64-inch square of paper. Tape paper to extend length.

Figure 1

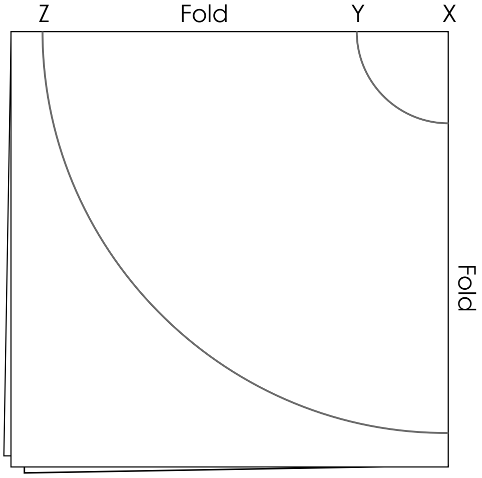


Figure 1
Corner fold of paper is X. Mark the following.

X to Y = radius measurement.

Y to Z = skirt length (include the hem).

Circle tool—With a push pin, secure the tape at the (X) 1-inch mark. Align tape measure at the fold and punch holes through at level with (Y) and (Z) marks. Place a pencil through the holes and draw the radius and hemline. See Figure 1 three pages back for guide.

Figure 2a, b
- Cut the skirt from paper.
- Cut away one quarter-section from the circle skirt.
- If two seams were calculated, cut in half.
- If four seams were calculated, cut the skirt into four equal parts. Notch to identify matching seams. See options on previous page for the placement of the grainline.

Figure 2a

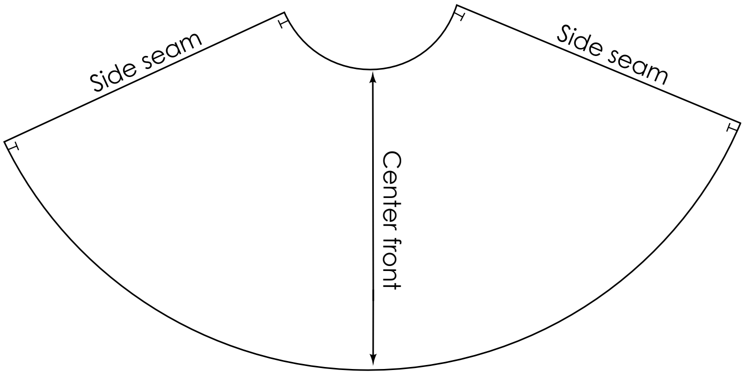
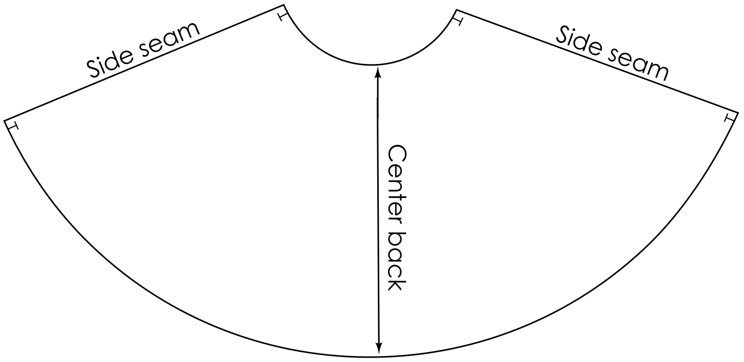


Figure 2b



Half-Circle Skirt

Fold paper in half. Two quarter-sections result in less hemline sweep but an increase in the radius measurement to compensate for the loss of the two sections. The skirt can have one seam in back or can be cut in two or more panels. See the Grainline Placements within Figure 1 in the Full-Circle Skirt section earlier in this chapter.

Pattern Plot and Manipulation

Formula

Waist measurement	________
Add seam allowances	________
Subtract 1 inch for stretch	________
Total	________

- Locate this measurement in Column 1 of the Radius Circle Chart and go across to Column 3, 1/2-circle.
- If using the sample measurement of 27 inches, the radius is 8 5/8 inches, less 1/2 inch; the radius measurement will be 8 1/8 inches.
- Length plus hem, as desired ____________.

Figure 1
Corner fold of paper is X. Mark the following:

X to Y = radius measurement.

Y to Z = skirt length (include the hem).

Circle tool—With a push pin, secure the tape at the (X) 1-inch mark. Align tape measure at fold and punch holes through at level with (Y) and (Z) marks. Place a pencil through the holes and draw the radius and hemline. See Figure 1 within the Full-Circle Skirt section earlier in this chapter for guide.

Figure 2
- Cut the skirt from the paper.
- If two seams were calculated, cut in half.
- If four seams were calculated, cut skirt into four equal parts (not shown).
- Notch to identify matching seams. See Grainline Placement Relative to the Fall of the Flare section two pages back for options for the placement of the grainline.

Paper Needed

Cut paper 32 × 64. Fold in half.

Figure 1

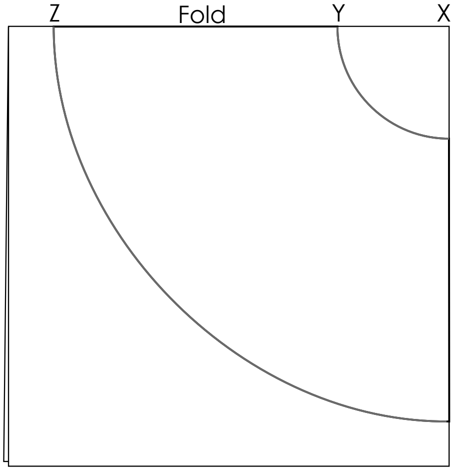
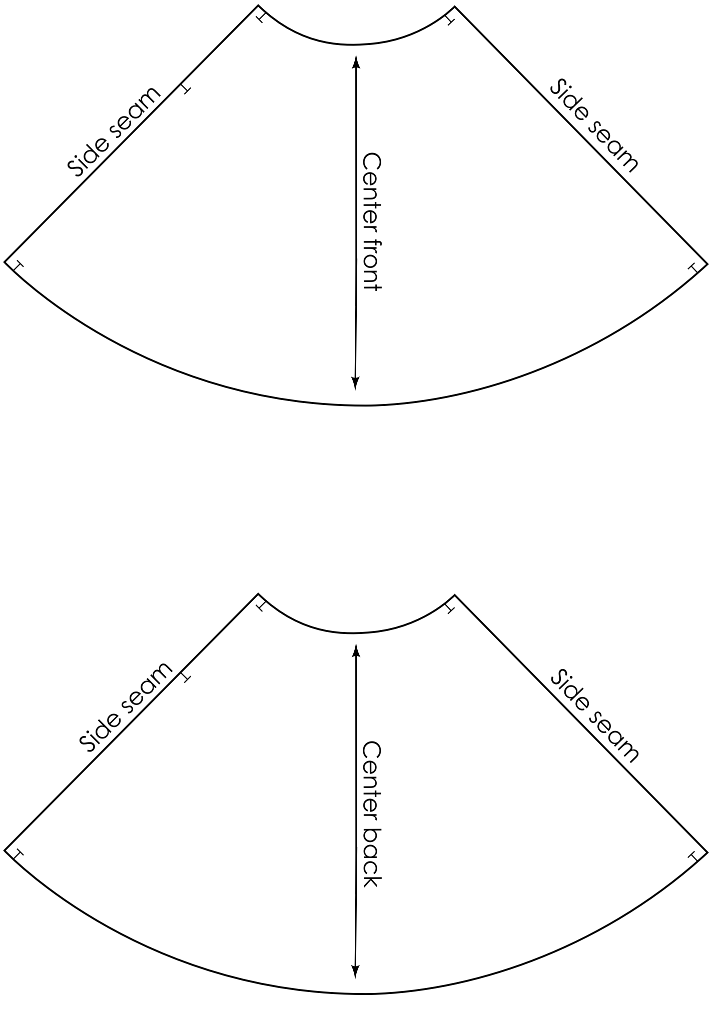


Figure 2



SKIRTS WITH UNEVEN HEMLINES

A number of hemline variations can be achieved by curving or pointing the outer circle and by placing the inner circle off-center. The following examples may be used as a guide for uneven hemlines—skirts, peplums, sleeves, tiers, hoods, capes, and so on.

Circular Skirt with Handkerchief Hem

Design Analysis

The design is a circular skirt with a handkerchief hemline (squared or pointed hemline). Waistline may be with or without gathers.

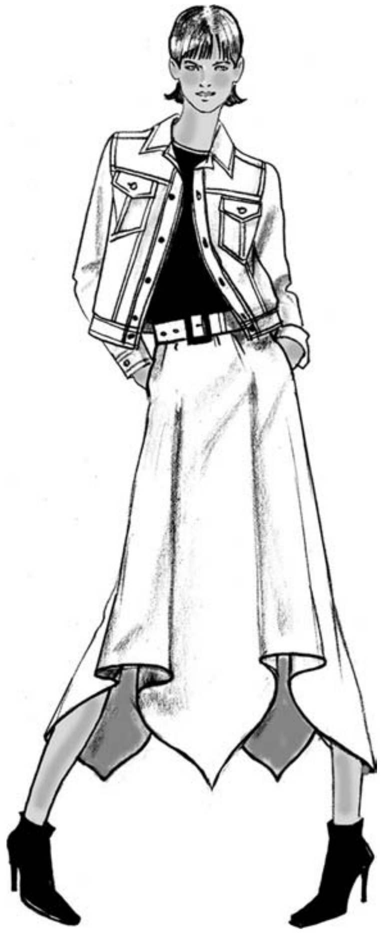


Figure 2

- Unfold patterns. Draw the grainline and complete for a test fit.

Pattern Plot and Manipulation

Paper Needed

Length, plus radius × 2 (2 pieces)

Figure 1

- For a gathered waist, increase the waistline measurement.

  Suggestion: 8 inches more or less. Example: 24 inches + 8 inches = 32 inches.
- Locate radius for full-circle in Column 5 of the Radius Chart.
- Fold paper in half. Label corner of fold X.

  X–Y = radius measurement, minus 1/2 inch for waistline seam. Mark Y on fold.
- *Circle Tool*—Draw a circle at the waist only. (See Grainline Placement Relative to the Fall of the Flare section earlier in this chapter for guidance.)
- Repeat for back skirt.
- To adjust front and back waist, see Figure 2, within the Full Circle Skirt section earlier in this chapter.
- Cut the waistline from pattern.

Figure 1

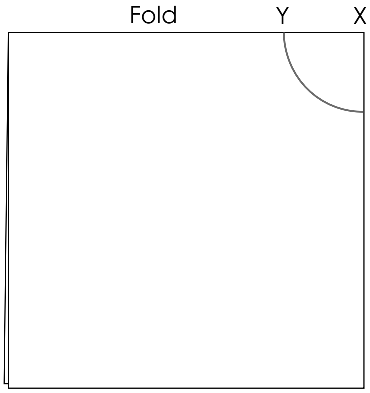
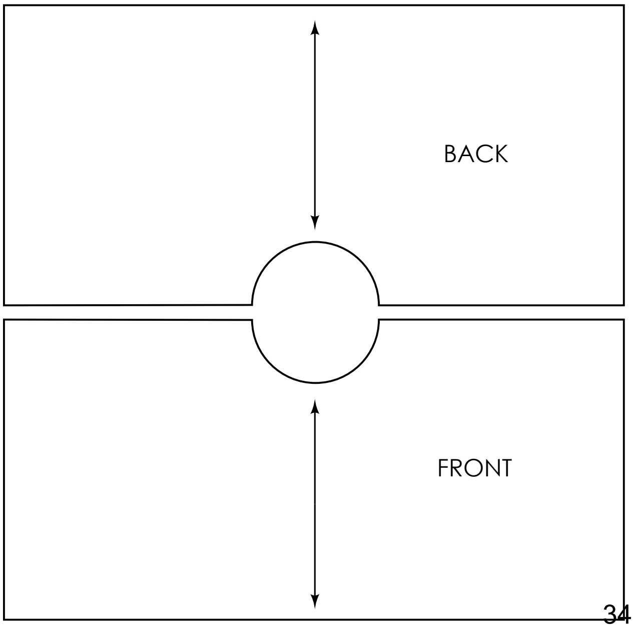


Figure 2

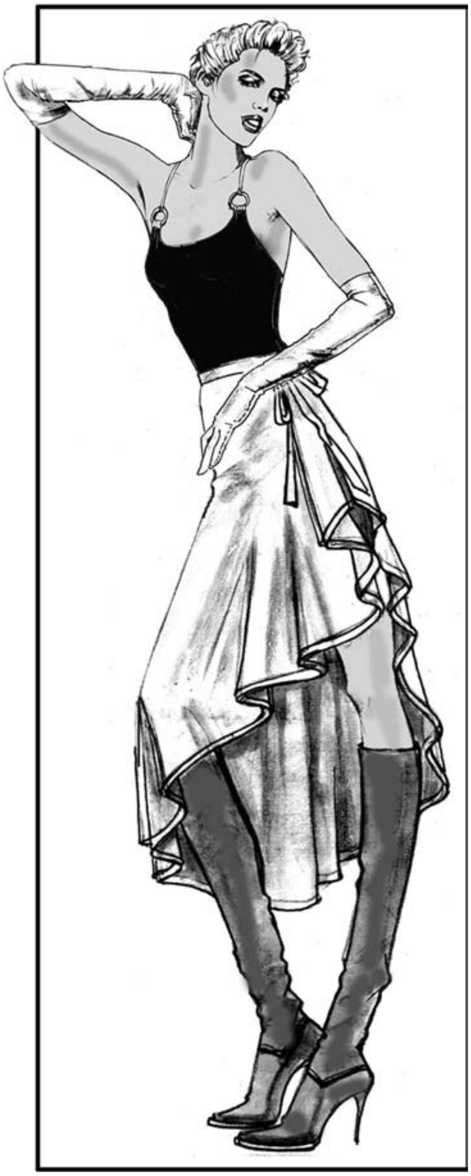


Circular Skirt with Graduated-Length Hemline

Design Analysis

The design has double circular skirts with one circle shorter than the other. A cascade effect is formed by the inner circles being cut off-center. Waistband ties skirt together.

If the waist is overlapped, add 1/2 inch to radius measurement. For a gathered waist, add 2 inches to radius.



Formula for Lengths

- To find radius, follow instructions for the circle and Radius Circle Chart, earlier in this chapter Columns 1 and 5.
- Determine shortest and longest lengths desired. Add both measurements together, plus 2 × radius, and record total measurement: ______________.
- Divide the measurement in half and record: ______________.

Example

- 27-inch adjusted waistline = 4 3/8-inch radius (full circle).
- Shortest length = 20 inches.
- Longest length = 36 inches.
- 2 × radius = 8 3/4 inches.

  Total = 64 3/4 inches

Pattern Plot and Manipulation

Paper needed: 64 3/4 inches

Figure 1

- Fold paper and mark corner A.

  A–Z = one-half of total length (example: 32 3/8 inches). Draw the hemline using measuring device.

  Z–Y = short length of skirt. Mark.

  Y–X = radius measurement minus 1/2 inch for waistline seam. Mark.
- Cut outer circle from paper.

Figure 1

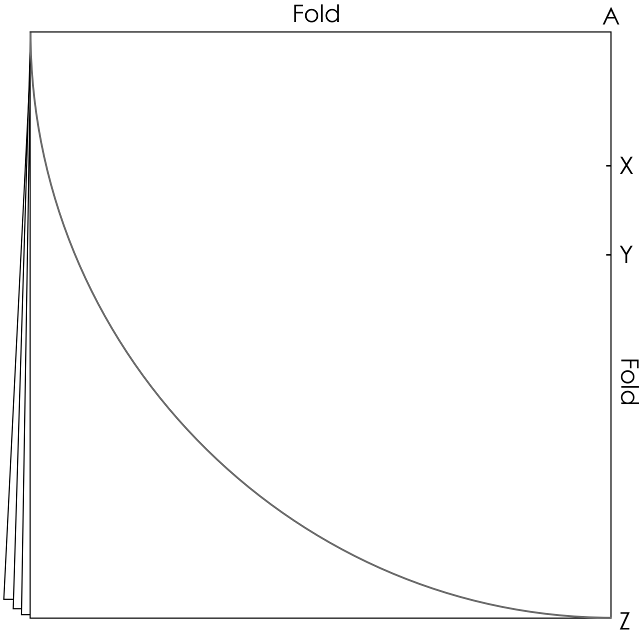


Figure 2

- Refold paper, using the X-point for fold line.
- Draw waist curve using radius measurement.
- Adjust waistline. See Figure 2 within the Full-circle skirt section earlier in this chapter. Cut the waistline from paper.

Figure 2

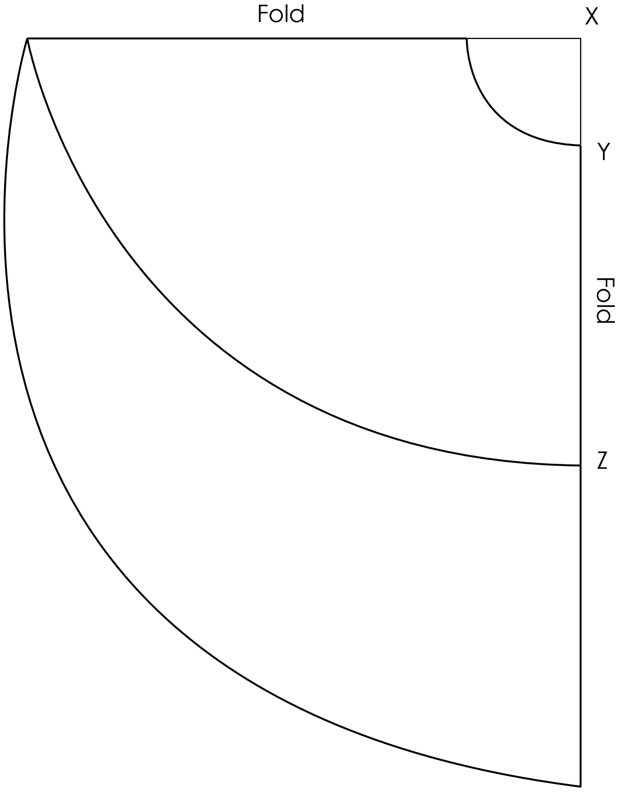
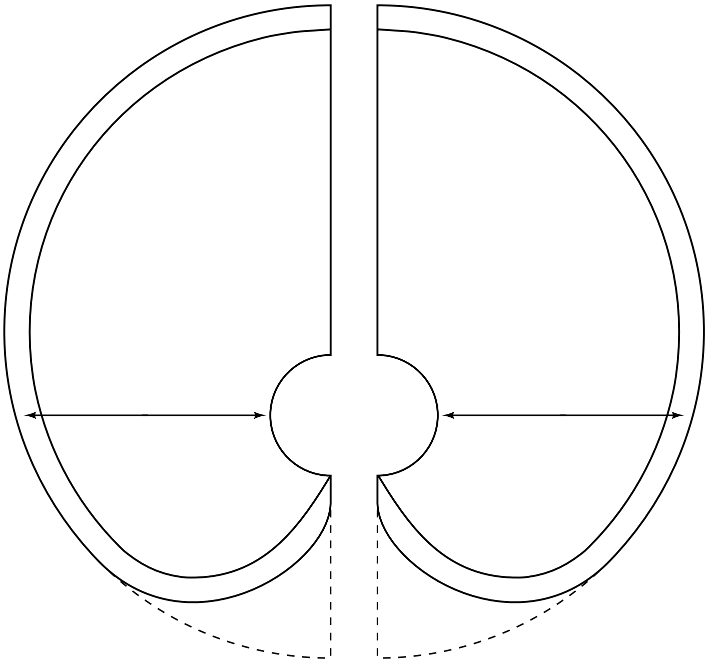


Figure 3

- Open pattern.
- Draw curved styleline for cascade and trim excess (broken lines). Separate front and back skirts.
- Retrace for the top skirt. Trim 1 1/2 inches (more or less) from length of skirt.
- Draw grainline and complete the pattern for a test fit. Allow skirt to hang. Re-mark, blend hemline, and cascade. Correct pattern.

Figure 3



Two Circles at Waist (Not Illustrated)

Pattern Plot and Manipulation

- **Measurements needed:** Waist measurement plus seam allowance (two seams, add 2 inches; four seams, add 4 inches)
- To develop a circular skirt with two circles, divide the adjusted waistline measurement in half.
- Locate the measurement in Column 1 of the chart.
- Locate radius for the full-circle in Column 5, less 1/2 inch.
- Cut two circles.

If more circles or part of a circle is desired at waist, divide the number of circles into the waist measurement. Add for seams and subtract for stretch.

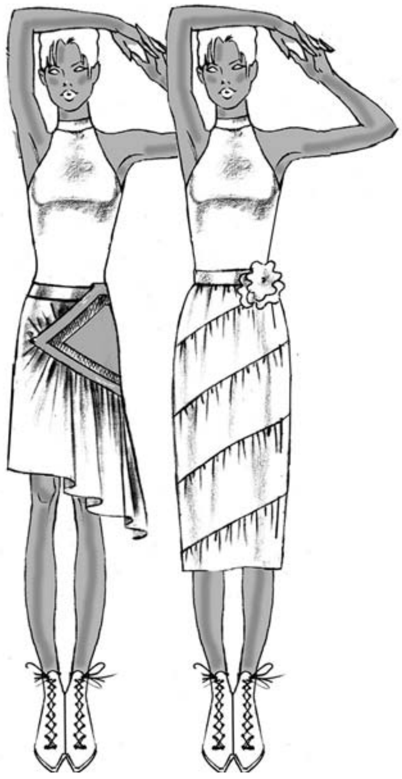
Gathered Circular Skirt (Not Illustrated)

Pattern Plot and Manipulation

- To add gathers to the waistline of a circular skirt, increase the waist measurement. (Example: waist measurement = 24 inches; add 8 inches for gathers = 32 inches.)
- Locate 32 inches on chart and find radius needed in Column 2, 3, 4, or 5 for fullness desired.

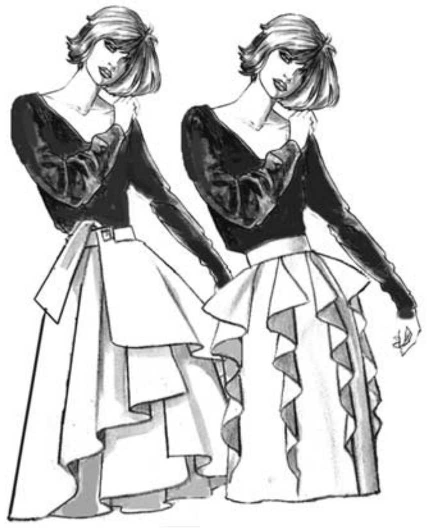
SKIRT DESIGN VARIATIONS

Develop Designs 1, 2, 3, and 4 for practice. Use the concepts illustrated in this chapter as well as the three major patternmaking principles.



Design 1

Design 2



Design 3

Design 4

SELF-EVALUATION TEST

Circle T for "true" or F for "false." to check your answers, see the end of the chapter.

1. The skirt silhouette and skirt design are the same. T F
2. The break point is where the zipper stops. T F
3. The basic skirt hangs straight from the abdominal level. T F
4. A peg silhouette can have greater fullness at waist than at hem. T F
5. The fluidity of the skirt's hemline is its movement. T F
6. Width of the hemline is called sweep. T F
7. The space between dart legs is useful for design. T F
8. Skirt darts can be combined to create special designs. T F
9. The waistband is the same as waistline measurement. T F
10. Placement of the grainline affects the flare of the skirt. T F
11. Puckering along side seams means the angles differ. T F
12. A ratio 1/2 to 1 fullness indicates inexpensive garments. T F
13. The weight of the fabric affects the ratio of fullness. T F
14. A seam changes jog along the same seam. T F
15. The dart excess is never included with added fullness. T F
16. Adding fullness will fall in direction of the slash line. T F
17. Ignore dart excess left over when yokeline is drawn. T F
18. Pleat groups that face in one direction are box pleats. T F
19. Fan out pleats that graduate from waist are accordion pleats. T F
20. Bias-cut skirts stretch and hang uneven at the hemline. T F

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Special Information

Set form to desired height and measure the following:

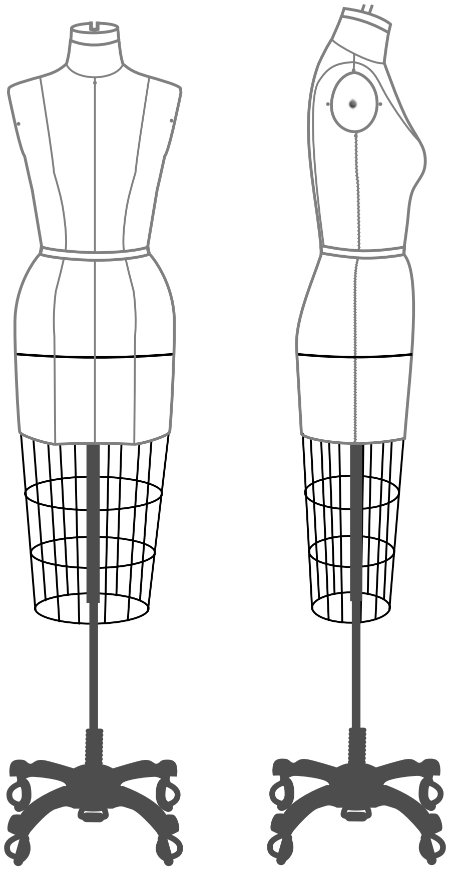
C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

*Measuring the Arm

Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

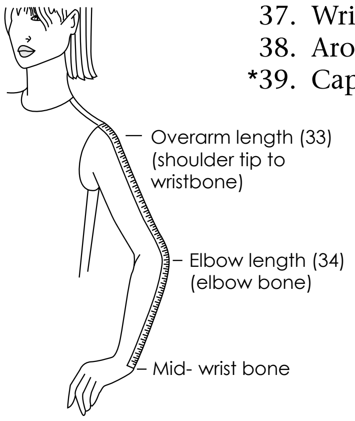
Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

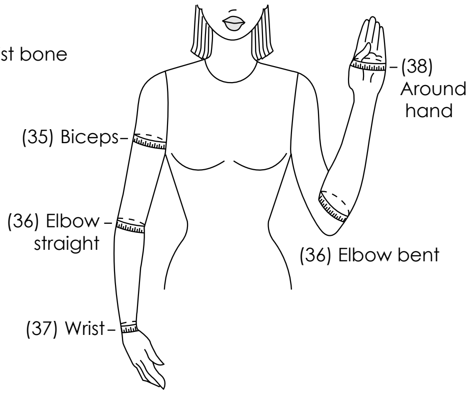
Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____

Length


Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone

Circumference



ANSWERS TO SELF-EVALUATION TESTS

1. F; **2.** F; **3.** T; **4.** T; **5.** T; **6.** T; **7.** T;
8. T; **9.** F; **10.** T; **11.** T; **12.** T; **13.** T; **14.** T; **15.** F;
16. T; **17.** F; **18.** F; **19.** F; **20.** T

This page intentionally left blank

Sleeves

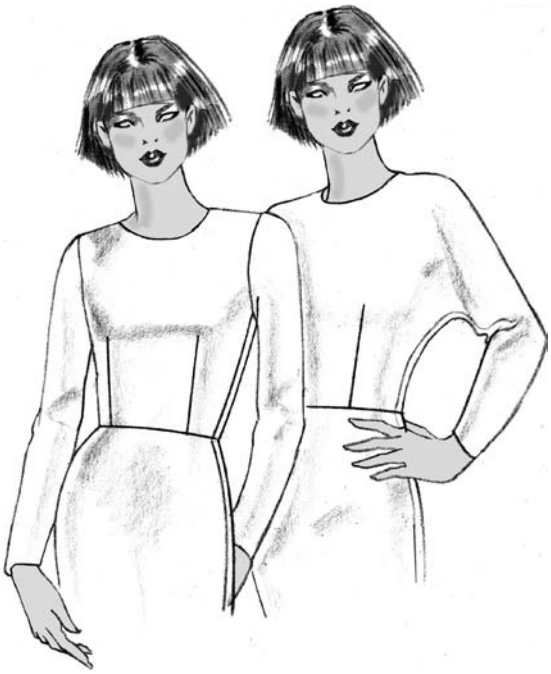
- INTRODUCTION
  - Set-in Sleeve
  - Terminology
  - Elbow Dart Variations
  - Shoulder Pads
- SLEEVE CUFFS
  - Basic Shirt Cuff
  - Self-Faced Cuff
  - French Cuff (Used with Cufflinks)
  - Contoured Cuff
  - Roll-Up Cuff
- CAP SLEEVES
  - Jutting Cap
- DARTLESS SLEEVE PATTERN
- MODIFYING ARMHOLE TO REDUCE SLEEVE CAP EASE
  - Options
- PUFF SLEEVES
  - Fullness at Hem
  - Fullness at Cap
  - Fullness at Hem and Cap
- CIRCULAR HEMLINE SLEEVES
  - Half-Circle Sleeves
  - Bell Sleeves
- PETAL SLEEVES
  - Plain Petal—Design 1
  - Gathered Petal—Design 2
  - Flared Petal—Design 3
- LANTERN SLEEVES
  - Long Lantern Sleeve—Design 1
  - Short Lantern Sleeve—Design 2
- SLEEVES WITH EXTENDED CAPS
  - Darted Cap
  - Crescent-Shaped, Extended Cap
  - Gathered Crescent Sleeve
  - Sleeve with Vertical Pleat
- LEG-OF-MUTTON SLEEVES
- COWL SLEEVES
- WEDDING SLEEVES
- SLEEVE DESIGN VARIATIONS
- SLEEVES WITH LOWERED ARMHOLE
- BASIC BISHOP SLEEVES
  - Bishop Sleeve Draft
  - Pivotal-Transfer Method in Developing the Bishop Sleeve
- EXAGGERATED BISHOP SLEEVE
- SELF-EVALUATION TEST

From Chapter 14 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

INTRODUCTION

Sleeves have been used as a device for changing the silhouette of garments throughout the history of fashion. In the 1880s, the dominant silhouette was a leg-of-mutton sleeve—a sleeve that puffs out from the shoulder with the lower section tapered toward the wrist. For the next 10 years, the sleeve puff varied from slim to voluminous and billowy. In the 1920s, a sleeve with a darted or an extended cap became popular. In the 1940s, the sleeve was smooth and included padded shoulders ranging from square and tailored to oversized exaggeration. There was a return to a natural shoulder with minimal padding in the 1950s. This gave tailored garments an even look along the shoulder seam. Since then, these important sleeve silhouettes have appeared and disappeared and will probably reappear again.

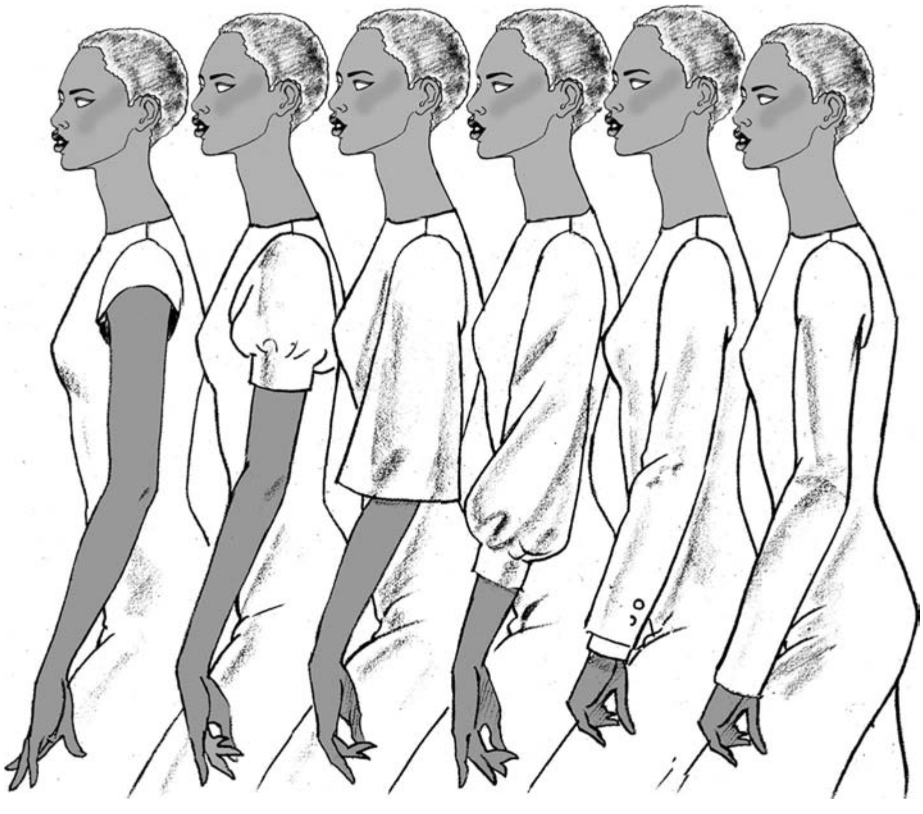
There are two major classifications of sleeves: the set-in sleeve cut separately and stitched into the armhole of the bodice and the sleeve combined with part or all of the bodice. Set-in sleeves are introduced in this chapter.



Set-in Sleeve

Set-in sleeves can be designed to fit the armhole smoothly or with gathers. They can be designed fitted or with exaggerated fullness and can be cut to any length.

The hemline of the sleeve can be finished in a number of ways, as will be illustrated in this chapter.



Terminology

Sleeve cap. Curved top of the sleeve from front to back.

Cap height. Distance from biceps to cap at center.

Biceps level. Widest part of the sleeve dividing the cap from the lower sleeve.

Sleeve ease. Additional allowance at biceps, elbow, and wrist levels accommodating the circumference of the arm and allowing ease for freedom of movement. Ease ranges from 1 1/2 to 2 or more inches.

Cap ease. Difference between the cap and armhole measurement (ranging from 1 to 1 7/8 inches).

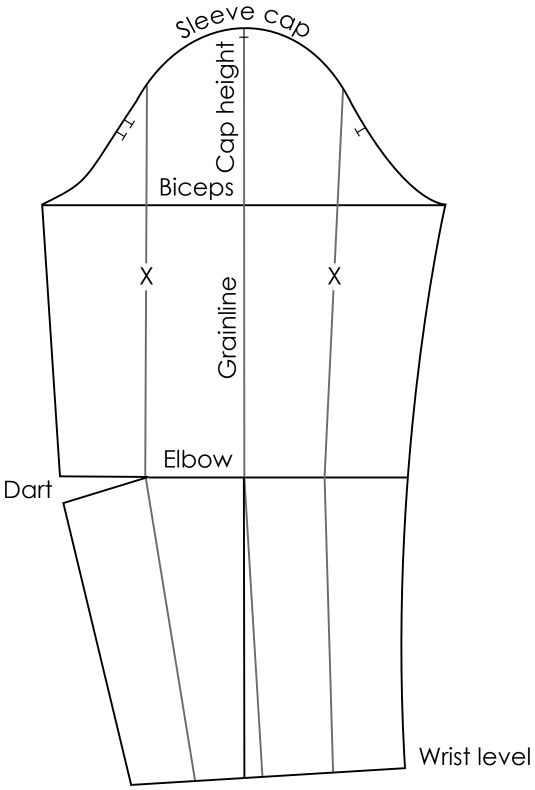
Elbow level. The location of the dart is level with the elbow of the arm.

Wrist level. The bottom (hemline) of the long sleeve, level with the wrist.

Grainline. Center of sleeve from top of the cap to wrist level—straight grain of sleeve.

Quartering sleeve. Sleeve divided into four equal parts from cap to wrist. Used as guidelines for spreading the sleeve. Quarter sections are labeled X (see illustration).

Notches. One notch indicates front sleeve; two notches indicate back sleeve. Cap notch indicates where sleeve and shoulder meet (location can vary from center grainline).



Elbow Dart Variations

The elbow dart excess may be converted into multiple darts or pleats, treated as ease, or transferred to other locations around the pattern's outline for design variations.

Darts or Pleats

- Draw slash lines 1/2 inch above and below dart legs and from dart point to elbow level (Figure 1).
- Cut slash lines and spread sections to equalize dart excess. Draw new darts. For pleats, omit dart points and punch and circles (Figure 2).

Ease

- Mark notches 2 inches up and down from dart legs.
- Draw blending line over dart area (Figure 3).

Figure 1

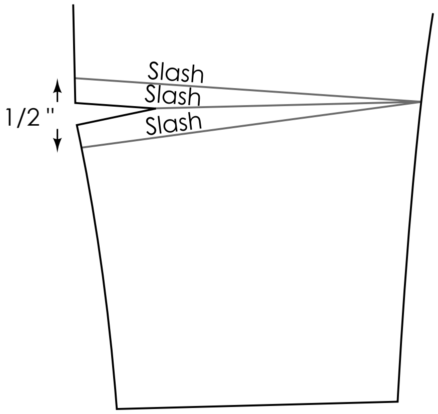


Figure 2

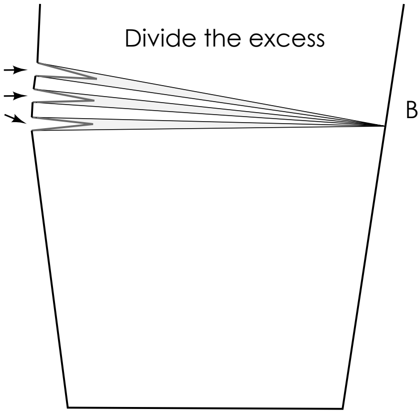
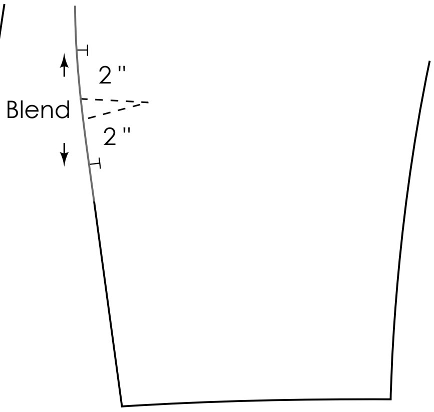
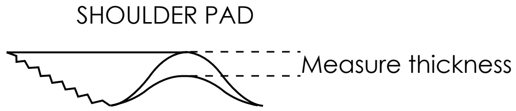


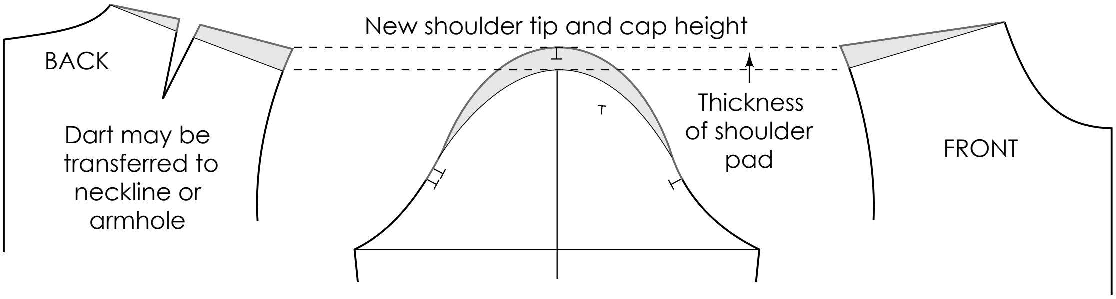
Figure 3

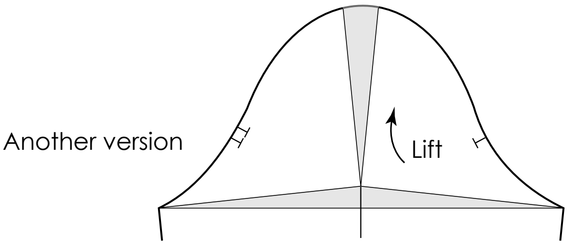


Shoulder Pads

The shoulderline and sleeve cap are modified to accommodate shoulder pads. Add the thickness of the shoulder pad to the shoulder tips of the bodice and to the sleeve cap (see two versions for adding height). It is not necessary to add to the shoulder tips of garments with a kimono design or a casual armhole (ease in the armhole of these designs allows room for the shoulder pad).


SHOULDER PAD
Measure thickness


New shoulder tip and cap height
BACK
Dart may be transferred to neckline or armhole
Thickness of shoulder pad
FRONT


Another version
Lift

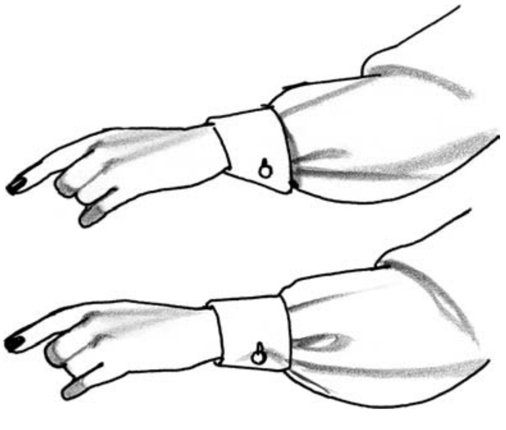
SLEEVE CUFFS

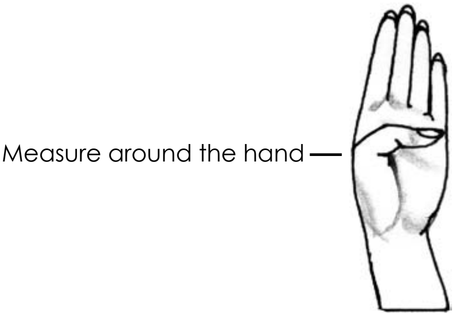
Sleeve cuffs are developed in a variety of widths and styled in a number of ways (curved, pointed, and so on). The most common are the basic shirt cuff; the French cuff; the closed cuff; the roll-up cuff; and the wide, contoured cuff. Other design variations are easily developed using the general instructions as a guide. The grainline can be altered to accommodate lengthwise grain, bias, or crossgrain as appropriate for the marker or fabric design (plaids and stripes).

Measurements Needed

Around hand ________________, plus 1/2- to 1-inch ease. Cuff width as desired.

Example: 8 1/2-inch (including ease) for a basic cuff 2 inches wide.




Measure around the hand

Basic Shirt Cuff

Figure 1

- Fold paper lengthwise.
- Square a 2-inch line from fold. Draw a parallel line 8 1/2 inches long. Mark.
- Add 1 inch for extension.

Figure 1

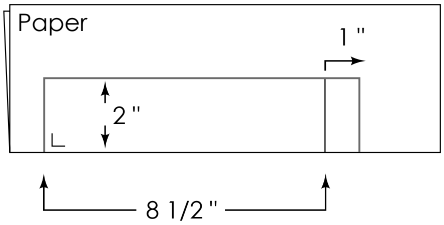


Figure 2

- Add 1/2-inch seams.
- Mark button placement in center of extension.
- Center buttonhole 3/4 inches from edge.
- Cut from the paper.

Figure 2

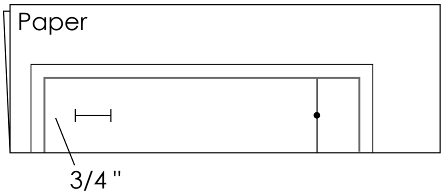
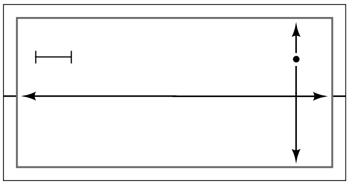


Figure 3

- Unfold cuff pattern. Add grainline, straight or crosswise.

Figure 3

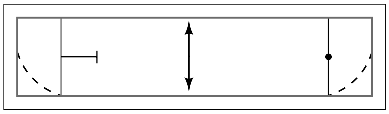


Self-Faced Cuff

Figure 4

- Develop cuff using general instructions.
- Cuff can be designed with square corners or curves (broken lines).
- Cut four pieces to complete the set.

Figure 4



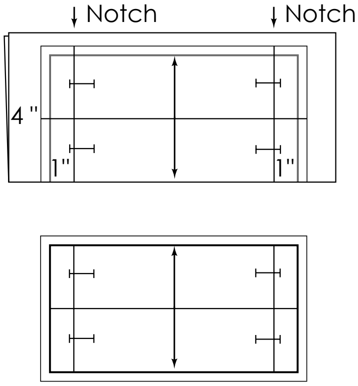
French Cuff (Used with Cufflinks)

One-Piece Cuff

Figure 5

- Fold paper lengthwise.
- Square a 4-inch line from fold equal to twice the cuff's width.
- Draw parallel line 8 1/2 inches long. Mark for notch and add 1-inch extension to both ends of the cuff. Connect ends.
- Mark for buttonholes.
- Add seams and grainline.
- Cut from the paper.

Figure 5

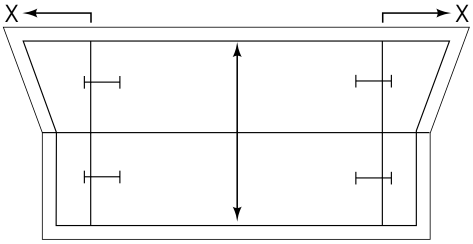


Two-Piece Pointed Cuff

Figure 6

- Develop cuff on open paper, using instructions for one-piece French cuff (Figure 5).
- Extend length to the upper ends of the cuff from 1/2 to 1 1/2 inches. (The amount is determined by the style of the garment.) Label X.
- Add seams to all sides of the pattern.
- Draw the grainline.
- Cut from the paper.

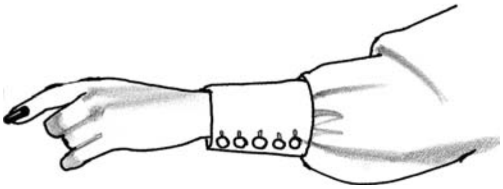
Figure 6



Contoured Cuff

Design Analysis

Contoured sleeve cuffs follow the shape of the arm and can be as wide as desired, ranging from the wrist to the elbow. The designs of the cuff and upper sleeve have the same shape—straight, rounded, pointed, or asymmetric.



Measurement Needed
Wrist measurement, plus 3/4 inch.

Subtract this measurement from the sleeve entry measurement and record the difference

Drafting the Cuff

The complete sleeve is illustrated.

Figure 1

- Trace the basic sleeve.
- Draw desired cuff line (shaded area).
- Draw a guideline from the dart point to the back sleeve.
- Divide the recorded difference equally and draw lines parallel to the underseam of the pattern to the cuff line.

Figure 1

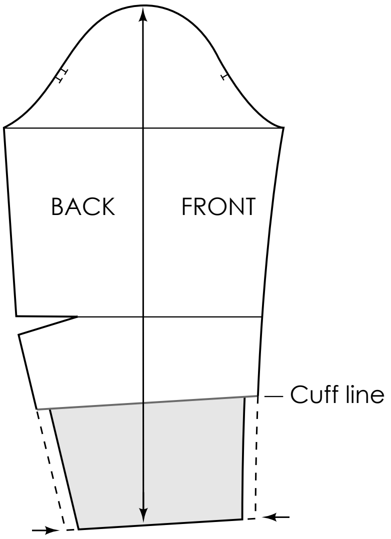


Figure 2

- Cut the cuff from the sleeve, trace, add 3/4-inch extensions (X) on both ends, and add seams.

Figure 2

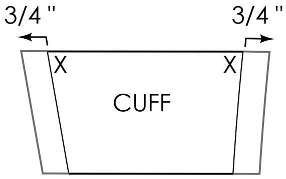


Figure 3

- Divide sleeve into quarters, close elbow dart, and draw a straight underseam line.

Figure 3

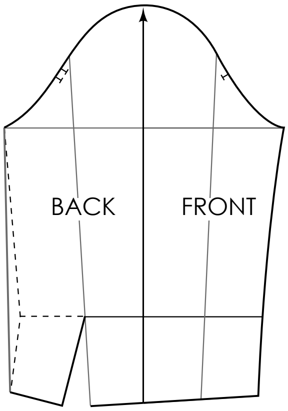
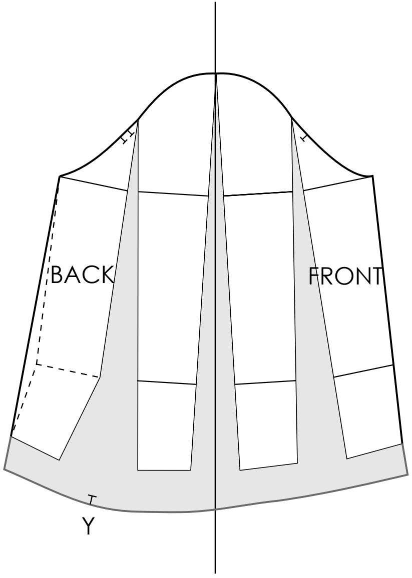


Figure 4

- Slash/spread to desired fullness, add length for blousing, and mark center Y, where X points of the cuff extensions overlap.

Figure 4



Roll-Up Cuff

Design Analysis

Roll-up cuffs are developed all-in-one with the sleeve or as separate cuffs stitched to the sleeve and turned up. To develop this type of cuff, determine the finished length of the sleeve (between biceps level to hem) and add cuff width. Example: Sleeve length below biceps = 4 inches; cuff 1 1/2 inches (for roll-up). Use these measurements or personal measurements. Use this process for pants with cuffs.

All-in-One Cuff with Sleeve

Figure 1

- Trace sleeve to finished length desired. Label A–B.
- Draw three parallel lines spaced 1 1/2 inches apart below hem (A–B line). Label Sections 1, 2, and 3.

Figure 1

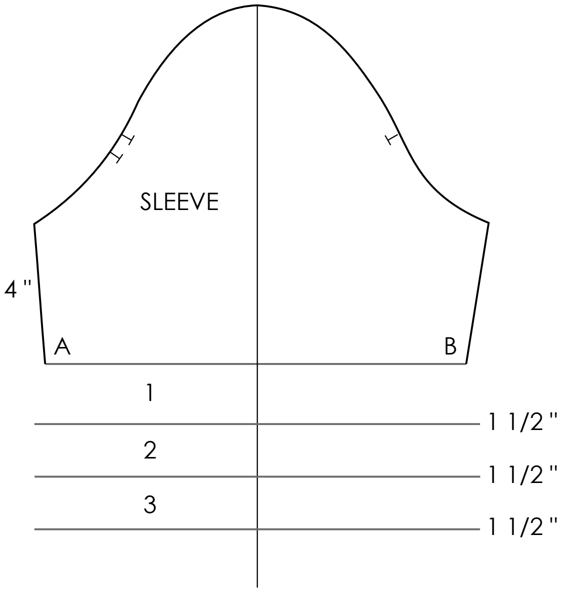
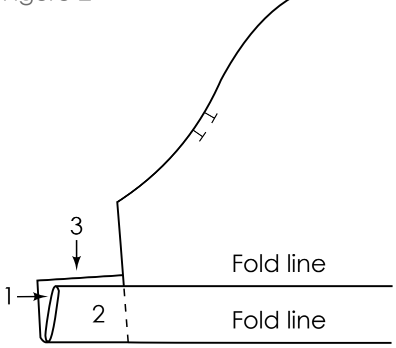


Figure 2

- Fold so that Section 1 is up, Section 2 down, and Section 3 underneath.
- Draw the underseams with a ruler on both sides of fold as guides and cut from the paper while folded. Unfold.

Figure 2



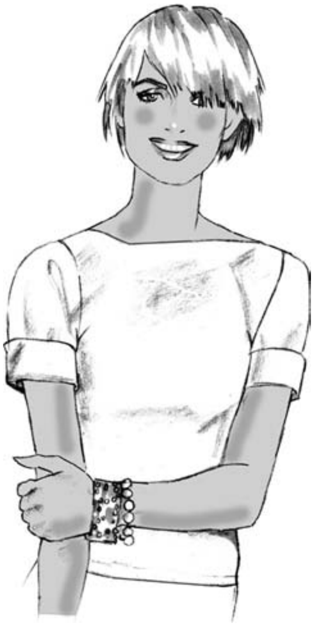
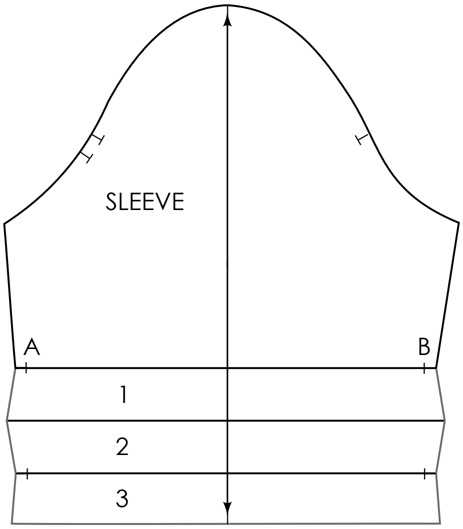


Figure 3

The completed pattern shape for the sleeve.

Figure 3



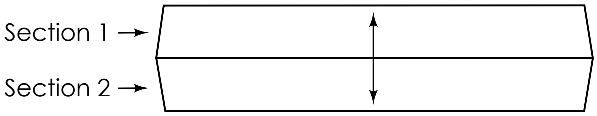
Separated Cuff

Figure 4

Follow the previous instructions for an all-in-one cuff, with the following exceptions:

- Omit third section.
- Cut along A–B line, separating cuff from sleeve.
- Add seams.

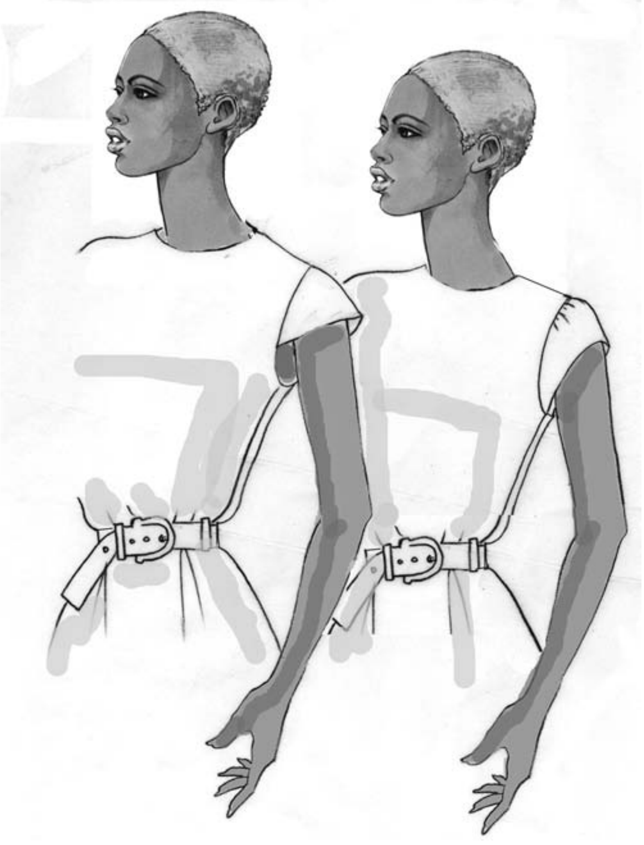
Figure 4



CAP SLEEVES

Cap sleeves can jut away from the arm (Design 1) or conform to the arm (Design 2). This type of sleeve can be shaped in a variety of ways and is usually designed for a bodice, dress, or blouse.

Design 1 Design 2



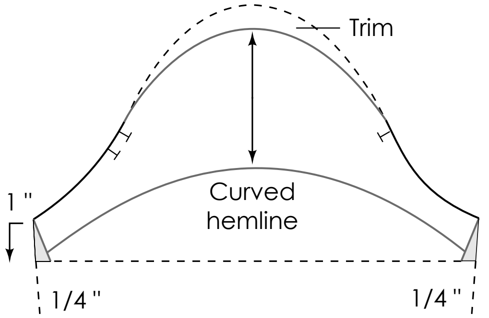
Jutting Cap

Pattern Plot and Manipulation

Figures 1a, b Sleeve Cap

- Trim approximately 1 inch from cap height (hemline will swing away from arm).
- Trim 1/4 inch from each side of the underseam.
- Add 1/4-inch ease on each side of the cap. Add to or remove from the cap height to control fit.

Figure 1a



Adding Gathers

- Trace a copy of the jutting sleeve. Slash and spread 3/8 inch (more or less) as desired. Blend sleeve cap.

Figure 1b

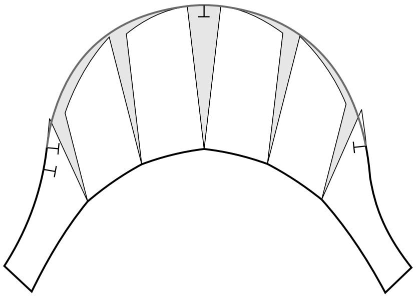
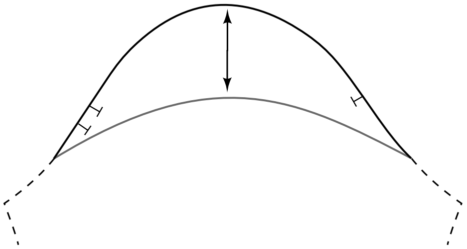


Figure 2

- Short curved cap sleeves can be self-faced.

Figure 2



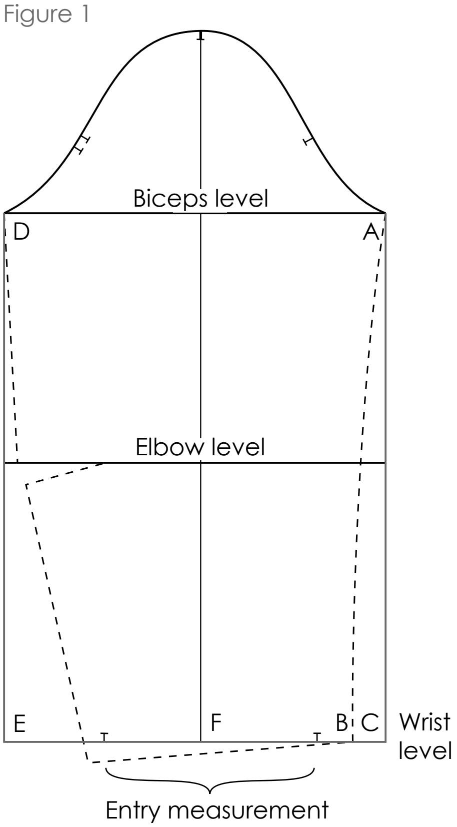
DARTLESS SLEEVE PATTERN

The dartless sleeve pattern differs from the basic sleeve in two ways: It does not have an elbow dart and it does not taper to the hemline. Its purpose is to develop sleeves with wide, sweeping hemlines (flare, bishop, bell), fullness in the sleeve or cap (puff sleeve), and those not requiring an elbow dart (shirt sleeves).

Two dartless sleeve patterns are illustrated, a full pattern and a half pattern.

The basic sleeve pattern can also be used to develop sleeve designs, but the dartless sleeve patterns simplify the process.

Figure 1


Biceps level
D
A
Elbow level
E
F
B
C
Wrist level
Entry measurement

Pattern Plot and Manipulation

Figure 1

- Trace basic sleeve, including all markings. (Broken line indicates original pattern.)

  A–C = A–B, squared down from A.

  D–E = A–C, squared down from D.
- Draw a line from C to E. Mark center and label F.
- Measure out from each side of F one-half of entry measurement. Mark.
- Cut from paper; discard unneeded section.

Figure 2 Full Sleeve

- Draw lines equally on both sides of the grainline to quarter the sleeve. Label X.

Figure 3 Half Sleeve

- Make a copy of the back sleeve from grainline to underarm seam. Trace front underarm curve on the back armhole. (When using the half sleeve, the center grainline is on the fold and the front armhole is traced and trimmed when unfolded.)

Figure 2

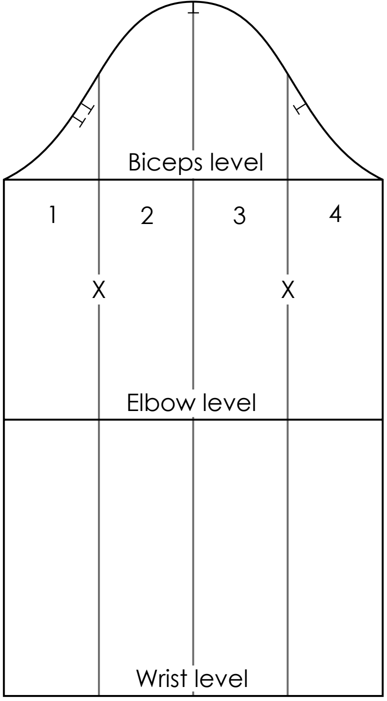
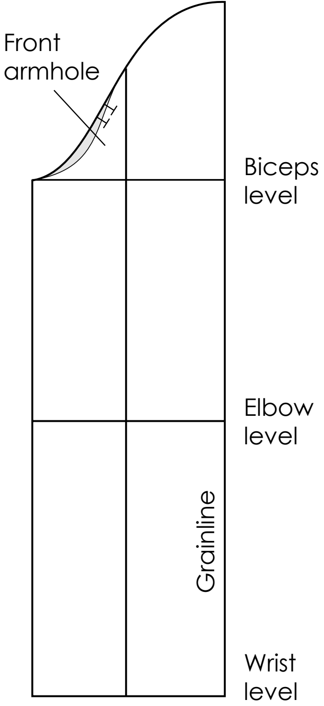

Biceps level
1
2
3
4
X
X
Elbow level
Wrist level

Figure 3


Front armhole
Biceps level
Elbow level
Grainline
Wrist level

MODIFYING ARMHOLE TO REDUCE SLEEVE CAP EASE

Figures 1, 2, 3

Sleeves designed with fullness at the hemline for flare or gathers require only 1/2-inch cap ease (1/4 inch on each side of center notch), which is sufficient for fitting over the ball of the arm.

Example: Cap ease = 1 1/4 inches. Allow 1/2 inch for ease; 3/4 inch remains to be distributed. Modify in any sequence or combination to solve the fitting problem.

Options

- Lower front and back armhole notches up to 1/4 inch each (Figure 1).
- Add 1/16 inch at shoulders and side seams, to zero (Figure 2).
- Lower cap height 1/4 to 1/2 inch for flared sleeves (Figure 3).

Figure 1

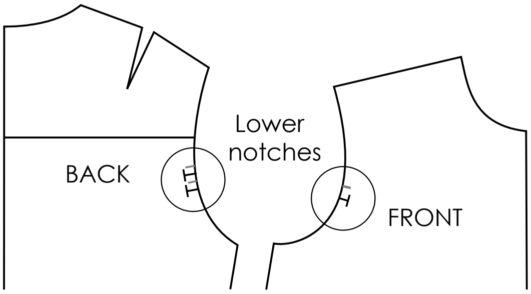


Figure 2

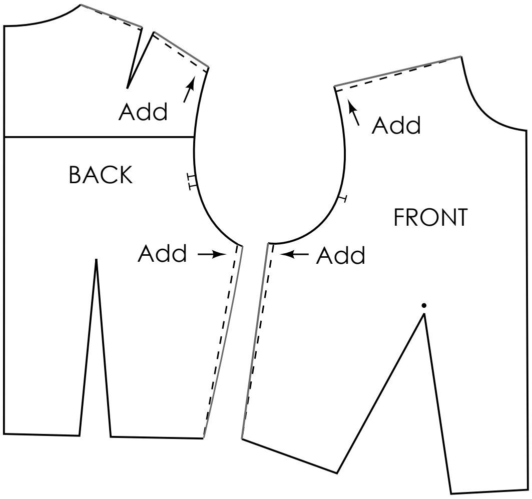
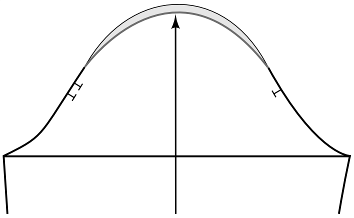
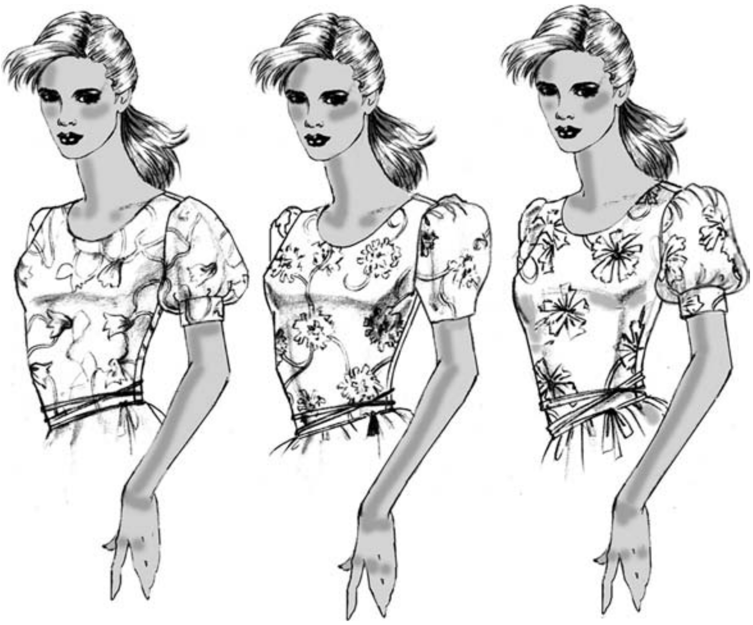


Figure 3

Trim cap 1/4 " to 1/2 "



PUFF SLEEVES



Design 1 Design 2 Design 3

Design Analysis: Designs 1, 2, and 3

Puff sleeves have fullness added—Principle 2. They are designed with gathers at the hemline, at the capline, or at the capline and hemline. The puff sleeve can be of any length, and fullness can be more or less than illustrated. See instruction above to modify armhole or sleeve cap. The dartless half pattern is the base for developing the puff sleeve designs.

Fullness at Hem

Figure 1

- Use the dartless half pattern for the following puff sleeve designs.
- Trace sleeve 2 inches below biceps.
- Draw and cut slash lines from hem to, but not through, capline.

Figure 2

- Fold paper, place sleeve on paper, and spread.
- Trace the sleeve and front sleeve underarm curve. Mark notches.
- Extend 2 inches at center front and blend curve line to underseam (creates the puff).
- Add 1/2-inch seams.
- Mark seam notches and cut from paper.

Figure 1

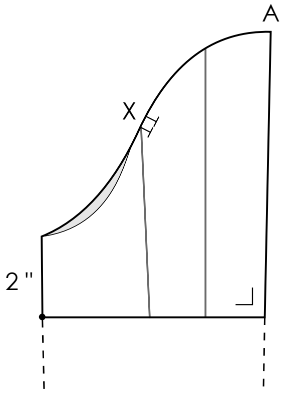


Figure 2

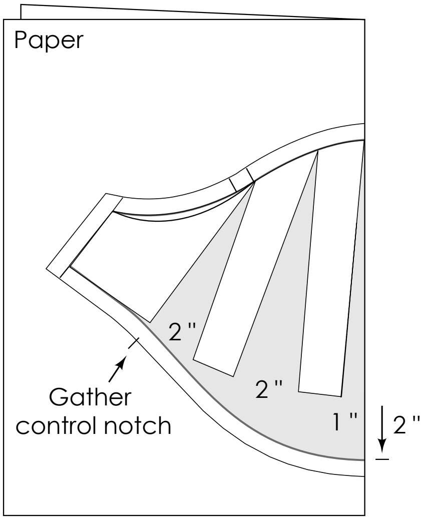
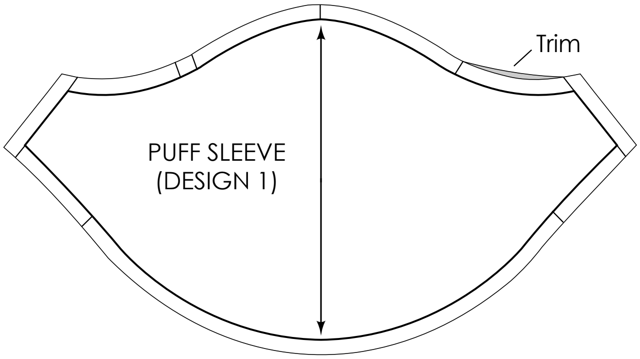


Figure 3

- Unfold pattern; draw grainline. Trim front sleeve underarm curve (shaded area).

Figure 3

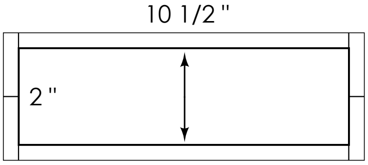


- A sleeve band (elastic or pull-through ties) can be used to secure short sleeves.

Figure 4 Sleeve Band

- Sleeve bands with elastic or pull-through ties secure short sleeves. Sleeves that end above elbow, use elbow measurement plus 1/2-inch ease. Sleeves that end below elbow, measure the arm at the level of the sleeve length. Add 3/4-inch ease. Example: Square cuff length equal to the elbow measurement (10 1/2 inches) and width 2 inches (finished band width is 1 inch).

Figure 4



Fullness at Cap

Figure 1

- Use the dartless half sleeve; see Figure 1 within Dartless Sleeve Pattern section eariler in this chapter.
- Place the sleeve on paper with hem touching fold. (Place the hem 1/2 inch over fold line to tighten hemline if desired—not illustrated.)
- Spread using measurements given.
- Trace sleeve and front sleeve underarm curve.
- Measure 2 inches up from cap to create puff. Mark and draw curved line.
- Cut from the paper.

Figure 1

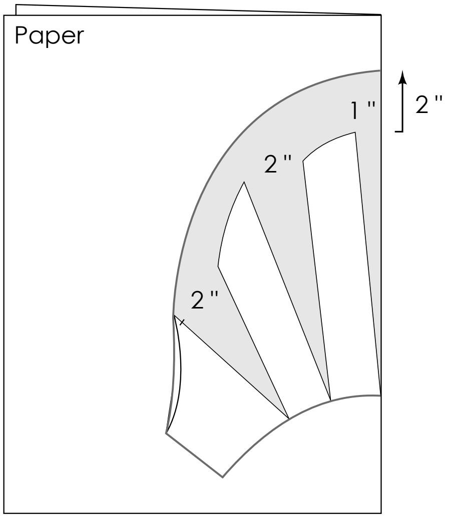


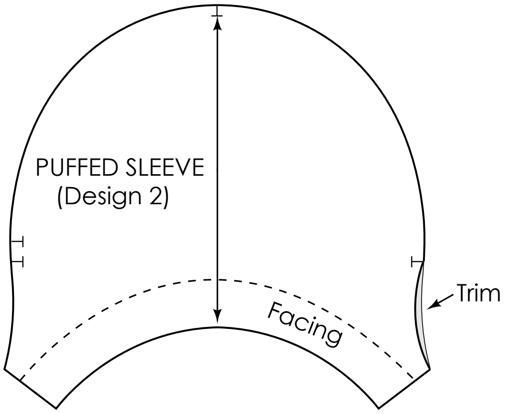
Figure 2

- Unfold the pattern.
- Draw the grainline, notch, and trim front sleeve curve.

Facing

- Trace facing of the sleeve 1 1/4 inches wide.

Figure 2



Fullness at Hem and Cap

Figure 1

- Use the dartless half sleeve; see within Dartless sleeve pattern section earlier in this chapter Figure 1.
- Square a guideline 3 inches up from fold.
- Place pattern on fold with hemline on guideline (indicated by broken lines). Label A and B.
- Measure 2 inches up from cap and down 2 inches from hem. Mark.
- B–C = one-half or all of A–B measurement for greater fullness. Mark on guideline.
- Shift pattern along guideline until point B touches C mark.
- Trace sleeve to the X-guideline, including front sleeve curve (shaded area).
- Blend curved line 2 inches above cap and below hem.

Figure 1

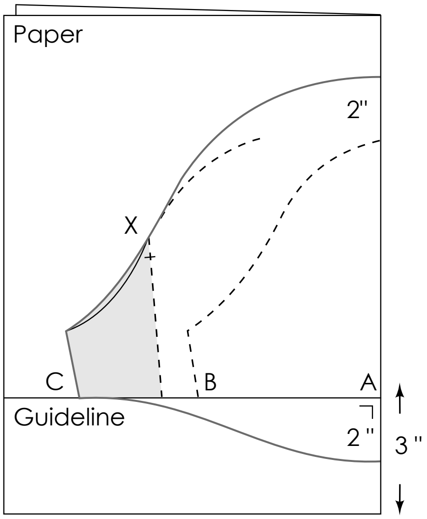
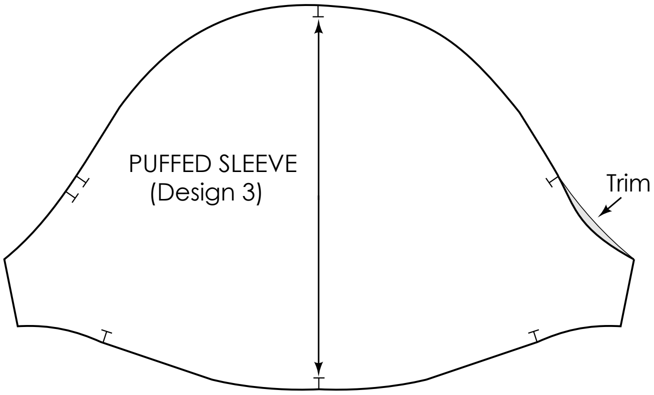


Figure 2

- Unfold the pattern; draw the grainline. Notch. Trim front sleeve curve.

Figure 2

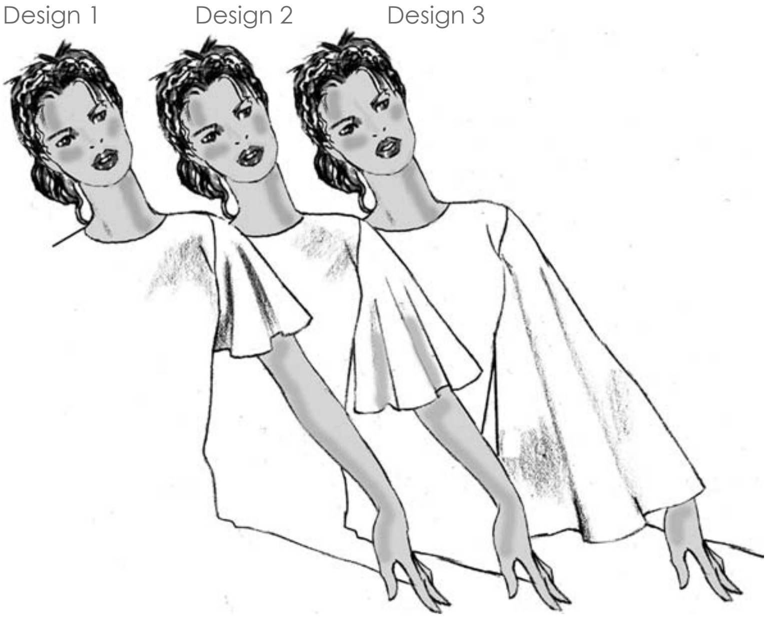


CIRCULAR HEMLINE SLEEVES

Half-Circle Sleeves

Design Analysis

The dartless sleeve pattern is used as a basis for increasing the sleeve hemline to a half circle. The sleeve can be developed to any desired length; see Designs 1, 2, and 3. The short sleeve (Design 1) should be used as a guide for longer lengths.


Design 1
Design 2
Design 3

Pattern Plot and Manipulation

Figure 1
- Trace dartless sleeve back 2 inches below biceps. Remove pattern. Square a line across the sleeve hem.
- Draw slash lines.
- Cut slash lines to, not through, cap.

Figure 1

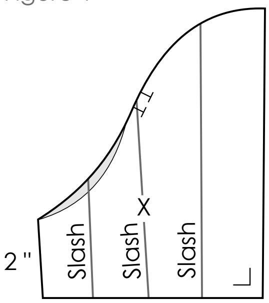

X
2 "
Slash
Slash
Slash

Figure 2
- Fold the paper.
- Square a guideline 2 inches down from fold.
- Spread each section until underseam touches or is parallel with the guideline.
- Trace the sleeve and front sleeve curve. Remove pattern.
- Cut from the paper.

Figure 2

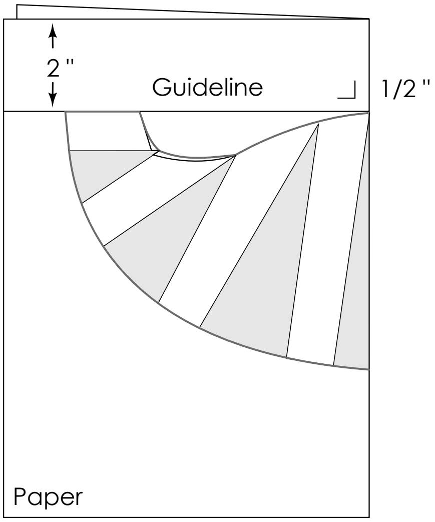
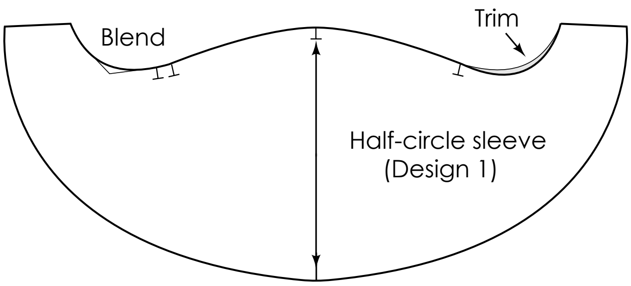

2 "
Guideline
1/2 "
Paper

Figure 3
- Unfold the pattern.
- Draw grainline. Notch. Trim front sleeve curve.

Figure 3

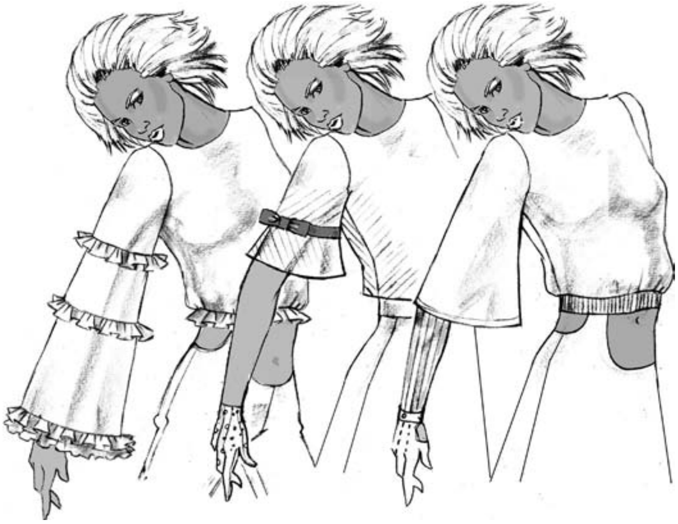

Blend
Trim
Half-circle sleeve
(Design 1)

Bell Sleeves

Design Analysis

A bell sleeve has a smooth cap and a hemline flaring out in the shape of a bell. The bell sleeve may be developed to any length and flare desired. It can be based on the dartless sleeve back, the bishop sleeve, or the exaggerated bishop sleeve (with the hemline trimmed). The dartless sleeve illustrates three sleeve lengths.

Adjust the armhole or sleeve cap.



Design 1 Design 2 Design 3

Pattern Plot and Manipulation

Figure 1

- Trace dartless sleeve back. Include a quarter line. Label X. Trace the front armhole curve.
- Mark length of bell sleeve as desired: below biceps, elbow level, or full length.
- Draw a slash line between the X-line and grainline.
- Cut slash lines to, not through, cap.

Figure 2

- Fold paper.
- Place sleeve on the fold of the paper and spread for desired hemline sweep, or use measurements given.
- Trace the pattern outline. Trace front underarm curve.
- Draw an inward curve to taper underseam.
- Cut from the paper, unfold, draw grainline, and trim front armhole curve (full pattern shown).

Figure 1

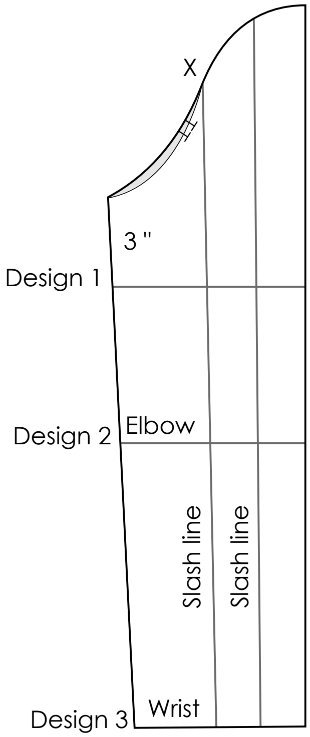
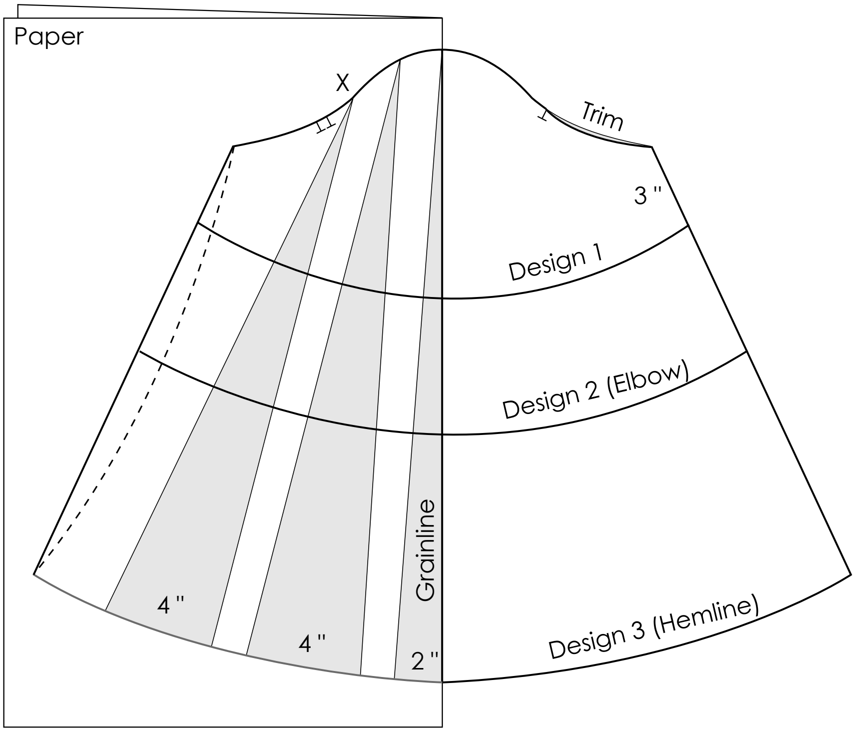

X
3 "
Design 1
Design 2
Elbow
Slash line
Slash line
Design 3
Wrist

Figure 2

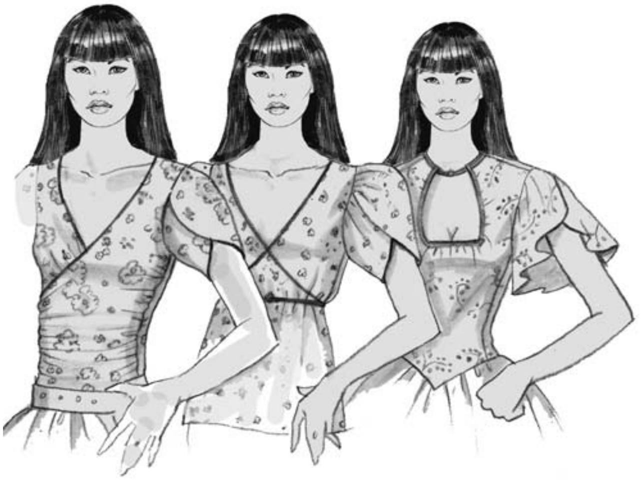

Paper
X
Trim
3 "
Design 1
Design 2 (Elbow)
Grainline
4 "
4 "
2 "
Design 3 (Hemline)

PETAL SLEEVES

Design Analysis

The petal sleeve resembles a petal as the sleeve sections cross over each other at the cap. The sleeves are developed in a number of ways and at varying lengths. Several petal sleeves are illustrated. The full dartless sleeve is used to develop the petal. The front sleeve underarm curve is trimmed. All three variations are developed from the same pattern.

The sleeve may be self-faced or lined.



Design 1 Design 2 Design 3

Plain Petal—Design 1

Pattern Plot and Manipulation

Figure 1

Trace the dartless sleeve to 1 1/2 inches below biceps line. Include all markings.

- Measure in 1/2 inch at the underseam. Draw a line to the corner of the sleeve.
  A–B = 5 inches. Mark.
  A–C = 3 1/2 inches. Mark.
- Draw petal styleline.
- Trace front sleeve curve for front petal.
- Cut the back petal from the paper.

Figure 1

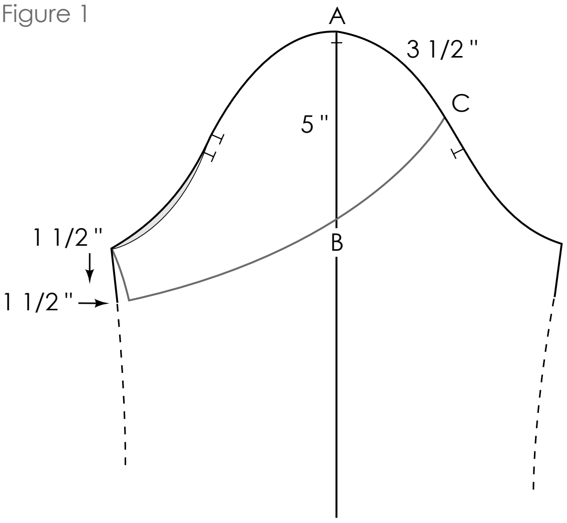


Figure 2 Two-Piece Petal

- Trace the petal pattern and cut.
- Trace again for the front petal.
- Cut the front; trim the excess from front armhole curve (shaded area). Draw grainlines.

Figure 2

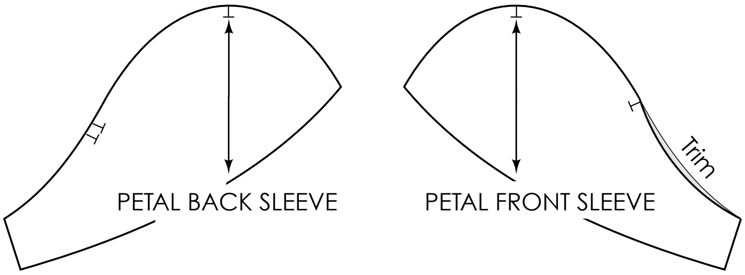
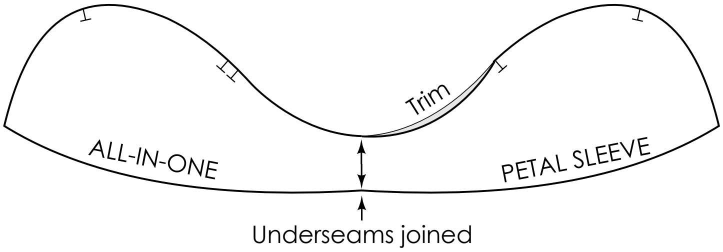


Figure 3 All-in-One Petal

- Align underseams and retrace the pattern.
- Draw the grainline, cut from paper, and trim the sleeve curve.

Figure 3



Gathered Petal—Design 2

Figure 4

- Trace back petal frame for Design 2. Extend underseam length 3 inches. Blend (broken line is original petal sleeve).
- Draw slash lines.

Adjust the armhole.

Figure 4

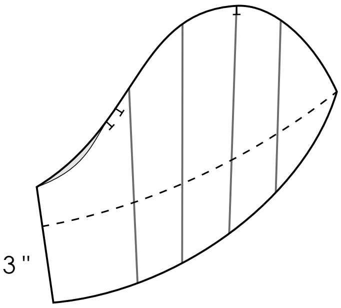


Figure 5 Back Sleeve

- Cut slash lines to, not through, the hemline. Place on the paper and spread for gathers (example: 1 inch each section; 1/2 inch on each side of center).
- Trace and remove the pattern.
- Add 1 inch to cap height. Blend and cut from the paper.

Figure 5

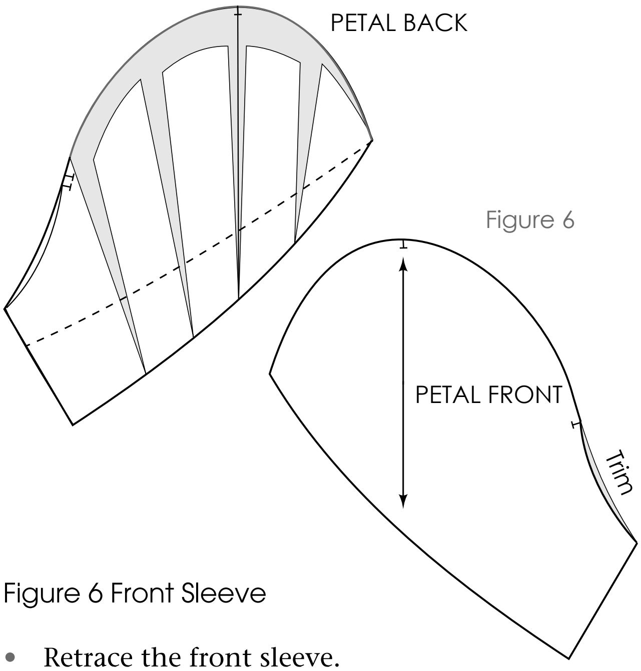


Figure 6

Figure 6 Front Sleeve

- Retrace the front sleeve.
- Cut and trim excess from sleeve curve. (If all-in-one petal is desired, align underseams. See Figure 3.)

Flared Petal—Design 3

Figure 7

- Trace the back petal sleeve for Design 3.
- Draw slash lines equally across the pattern.

Adjust the armhole.

Figure 7

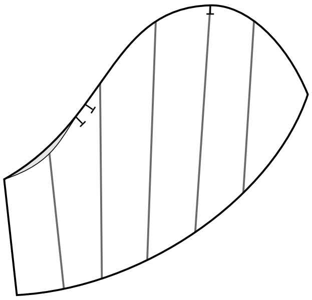


Figure 8

- Cut slash lines to, not through, the cap.
- Draw squared guidelines on the paper. Square out from each side of vertical line for horizontal guideline.
- Align the cap with vertical line, and corner of the underseam with horizontal guidelines. Spread the pattern sections and trace.
- Shape the petal to within 2 inches of notch point.
- Cut from the paper.

Figure 8

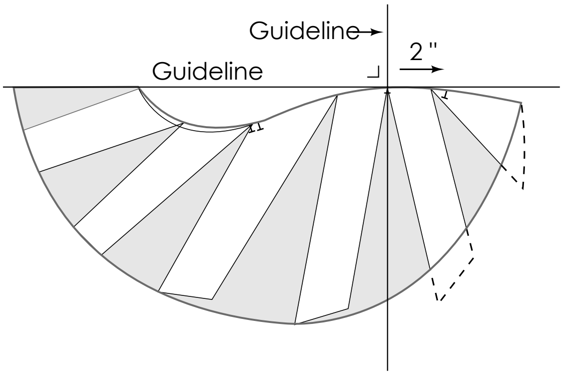
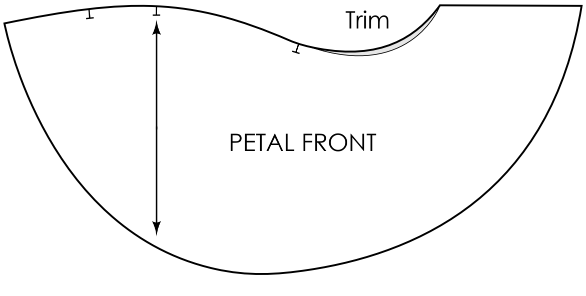


Figure 9

- Retrace for the front sleeve and draw the grainline.

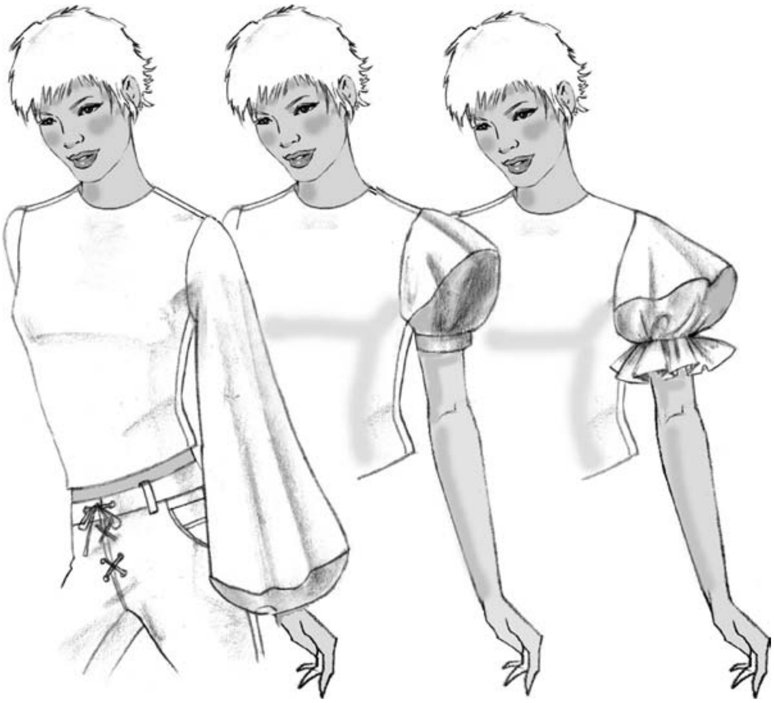
Figure 9



LANTERN SLEEVES

Design Analysis

A lantern sleeve is a two-section sleeve that flares out from the cap (upper section) and hemline to a styleline within the sleeve. The sleeve can be developed at varying lengths and fullness. The three designs show the flexibility of the lantern sleeve silhouette. Design 3 is given as a practice problem. Adjust the armhole.


Design 1 Design 2 Design 3

Long Lantern Sleeve—Design 1

Measurement Needed

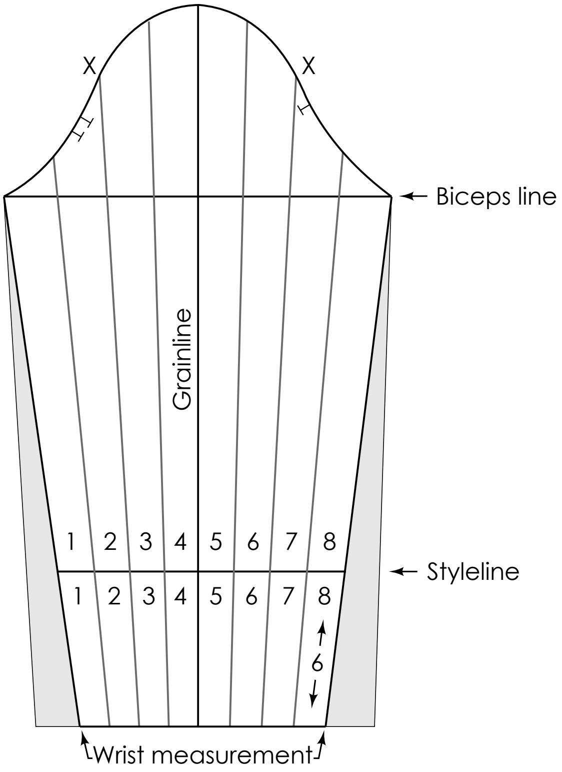
- Around hand ______________. (See Sleeve Cuffs section earlier in this chapter.)

Pattern Plot and Manipulation

Figure 1

- Trace the dartless sleeve pattern and all markings.
- Label quarter-sections X.
- Mark one-half of the around-hand measurement, less 1/2 inch from each side of the grain at the hemline.
- Draw lines from the wrist marks to biceps.
- Draw a styleline 6 inches up from the hem (varies).
- Divide the sleeve into eight parts and number.
- Cut and discard the unneeded sections (shaded area).

Figure 1



Figures 2, 3

- Cut and separate the upper from the lower section.

Figure 2

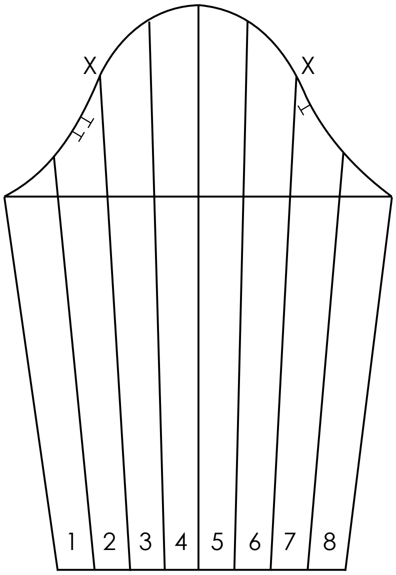


Figure 3

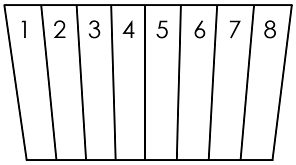


Figure 4 Upper Sleeve

- Cut slash line to, not through, the cap.
- Place on the paper and spread the desired amount, secure, and trace.
- Measure down 1 inch from the bottom panel.
- Blend a curved line to the underseams.
- Notch center line of sleeve.
- Cut from the paper.

Figure 4

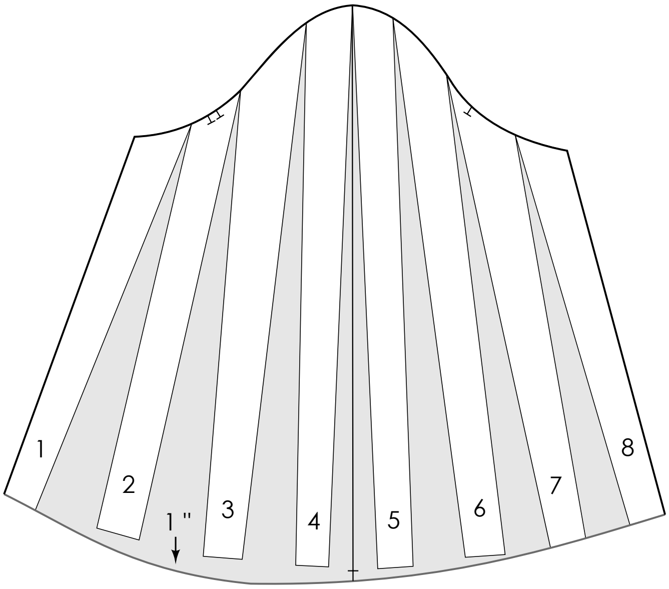
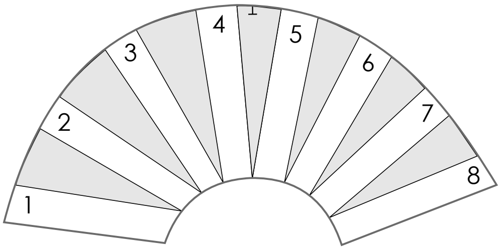


Figure 5 Lower Sleeve

- Develop the lower section, spreading the same amount as the upper sleeve.

Figure 5

LOWER SLEEVE



Short Lantern Sleeve—Design 2

Pattern Plot and Manipulation

Figure 1

- Trace back half of the dartless pattern to 5 inches below biceps. Include the front underarm curve.
- Draw a line from biceps, ending 1/2 inch in from the hemline. (Broken line indicates the original underseam.)
- Draw a lantern styleline, dividing the upper and lower sections equally.
- Draw slash lines and label.
- Adjust the armhole.

Figure 1

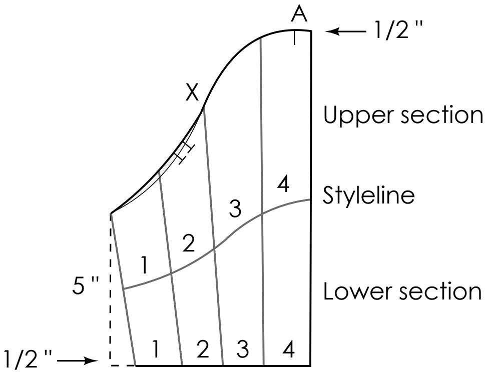

A
1/2 "
X
Upper section
4
3
Styleline
2
1
5 "
Lower section
1/2 "
1
2
3
4

Figure 4

- Cut slash lines to, not through, the cap and hem of both sections.
- Place sleeve on fold of the paper (point A of upper section touches fold line).
- Spread the upper and lower sections (example: 1 1/2 inches; 3/4 inch each side of center line).
- Trace the patterns and front underarm curve.
- Extend center line of the sleeve sections 1 inch at styleline, blending the curved line. (Upper and lower stylelines must measure the same.)
- Notch where shown and cut from the paper. Unfold and trim front underarm curve.

Figures 2, 3

- Cut sleeve from paper.
- Cut and separate the upper from the lower section.

Figure 2

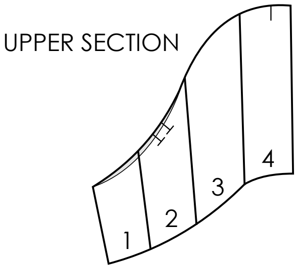

UPPER SECTION
4
3
2
1

Figure 3

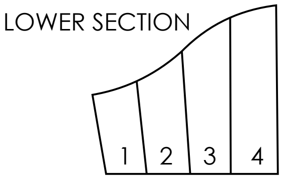
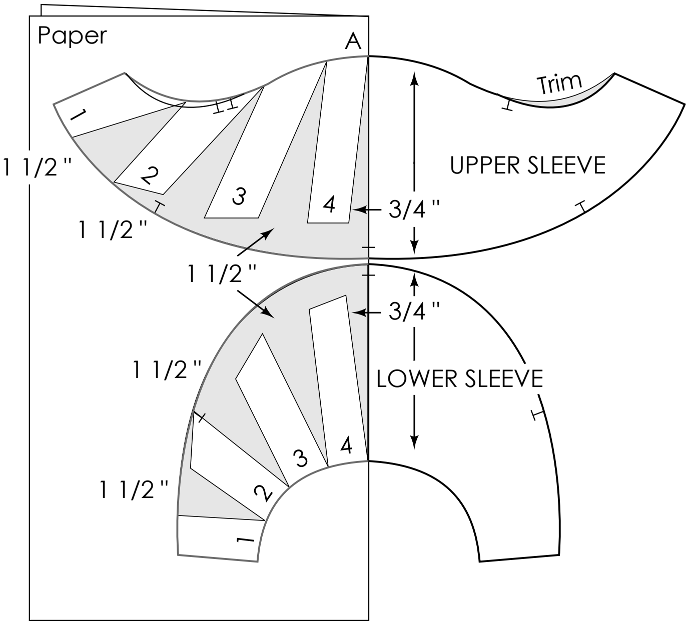

LOWER SECTION
1
2
3
4

Figure 4


Paper
A
Trim
1
1 1/2 "
2
3
4
UPPER SLEEVE
3/4 "
1 1/2 "
1 1/2 "
3/4 "
1 1/2 "
LOWER SLEEVE
4
3
1 1/2 "
2
1

SLEEVES WITH EXTENDED CAPS

Darted Cap

Design Analysis—Design 2

Sleeve extends out from the ball of the arm and is controlled by three darts for Design 2. Design 1 is based on the same pattern, except that the cap is blended for gathers. Cap ease can be eliminated, as illustrated, or see modifying Armhole to Reduce sleeve cap Ease section earlier in this chapter for adjusting the armhole.

Pattern Plot and Manipulation

Figure 1

- Trace the basic sleeve.
- Draw slash lines 2 inches away from the center grainline at cap.
- Draw 1/8-inch wedge *along* each slash line at the cap (1/16 inch out from each side of notch) to zero at the grainline of the biceps line. This eliminates some of the cap ease. Disregard instruction if the armhole has been adjusted.
- Cut the sleeve from paper. Discard unneeded sections (shaded area).

Figure 1

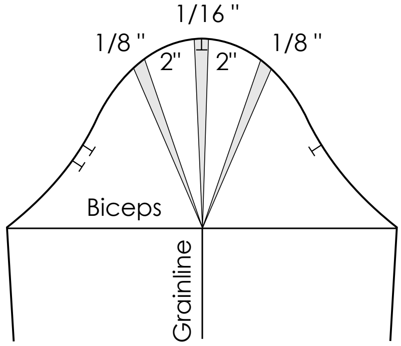


Figure 3

- Fold dart legs, cupping pattern to blend cap.

Figure 4

- Unfold and mark notches and punch circles.

Figure 3

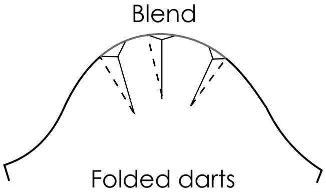
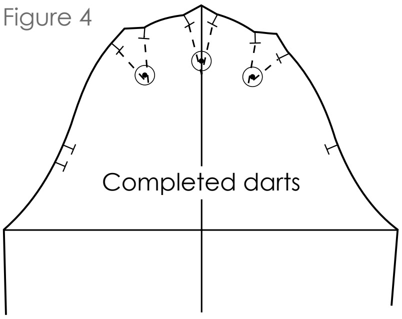


Figure 4



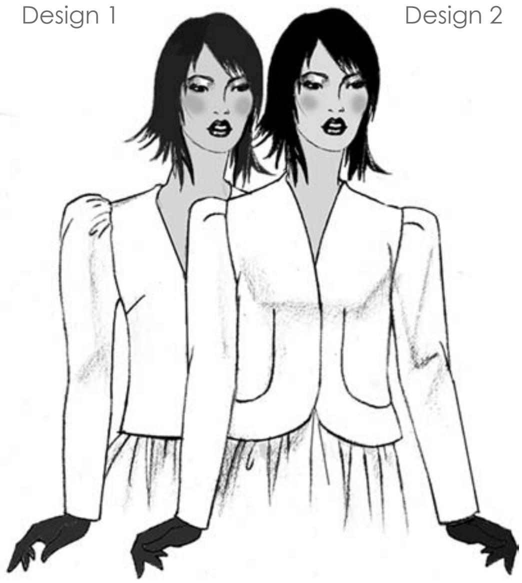
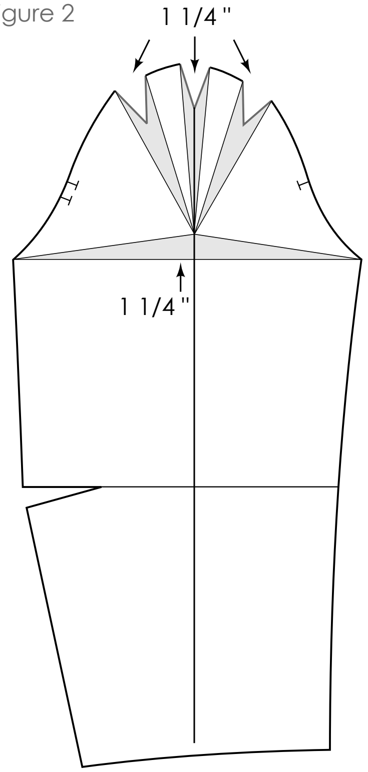


Figure 2

- Slash from cap to, not through, corners of the biceps line.
- Raise biceps 1 1/4 inches. Spread sections equally and trace.
- Center and mark the dart points 1 1/4 inches down each opening. Draw dart legs.

Figure 2



Crescent-Shaped, Extended Cap

Design Analysis—Design 3

The sleeve cap is extended, forming a crescent-shaped styleline parallel to the armhole. Instruction for Design 4 follows this project. See earlier in the chapter to adjust the armhole.

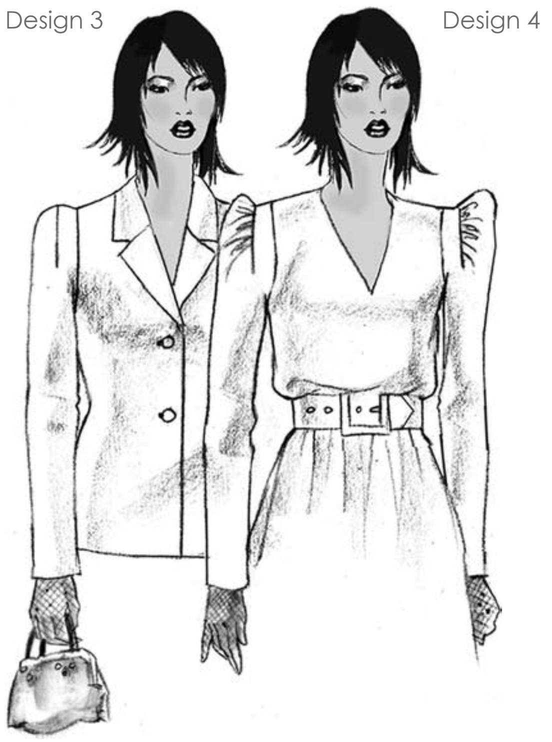
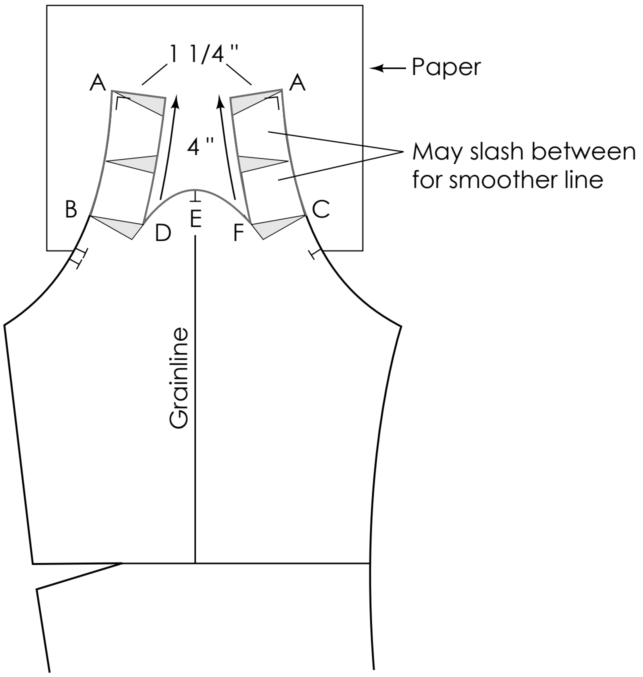


Figure 2



Pattern Plot and Manipulation

Figure 1

- Trace basic sleeve and all markings.
- Label center grainline A. Mark E 1 1/4 inches down from A.
- Mark B and C 4 inches from A.
- Square in 1 1/4-inch lines from B and C and between A–B and A–C.
- Draw a curved line from D to E to F parallel to the sleeve cap.
- Cut the sleeve from paper.
- Cut slash lines *carefully* from A to E, E to D, and E to F.
- Cut capline from A to B and A to C.

Figure 1

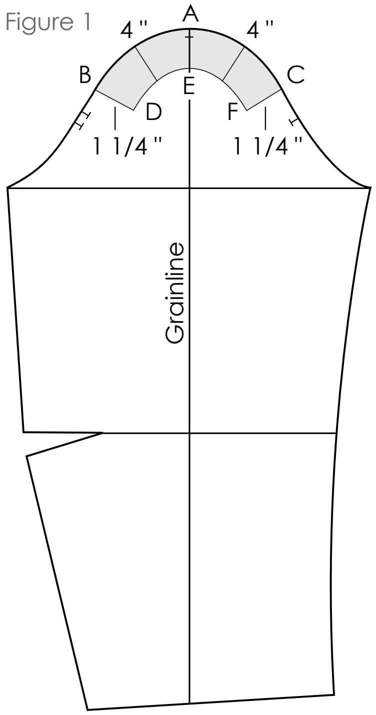


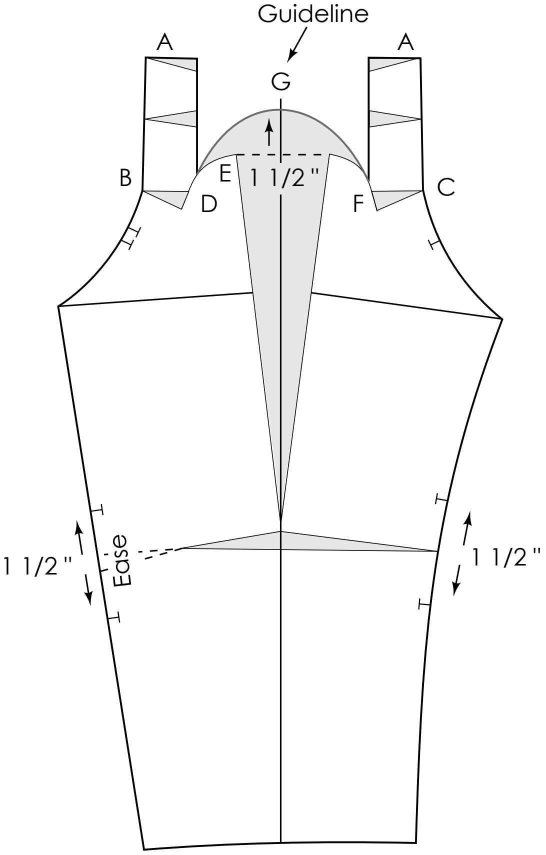
Figure 2

- Cut to, not through, remaining slash lines (from inner to outer cap). Place paper underneath and secure.
- Spread until Sections D and F touch curve of the sleeve.
- Measure the opened space and use as a spread amount for the next section.
- Secure by pinning spread sections to the paper underneath.
- Square lines from A equal to panel width (1 1/4 inches). From this point, draw lines to D and F parallel to the cap. *Note:* D and F lines should both equal 4 inches. If they do not, adjust by increasing or decreasing spread. Tape to secure.
- Cut from the paper.
- Slash through E to elbow.

Figure 3

- Continue the slash across elbow level to, not through, the underseam and dart point.
- Draw a vertical guideline (grainline) on another paper.
- Place on the paper. Spread E 1 1/2 inches out from each side of the guideline. Secure. If elbow dart does not completely close, notch 1 1/2 inches on each side of the elbow level and from each dart leg to control remaining ease. Blend.
- Measure up 1 1/2 inches from the guideline. Mark and label G.
- Draw a curve from G to D and from G to F. The curved line must measure 4 inches. If it does not, adjust spread.
- Trace the sleeve.
- Complete the pattern and cut from paper.

Figure 3



Gathered Crescent Sleeve

Design Analysis—Design 4

The sleeve extends beyond the ball of the arm, with gathers forming around the crescent styleline.

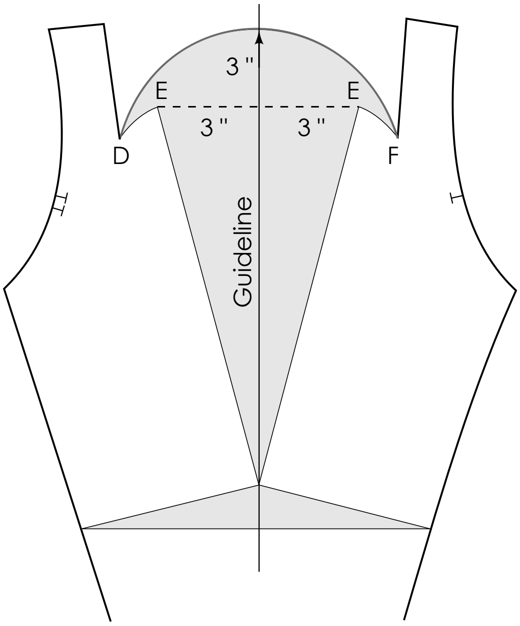
Figure 1

- Follow instructions given for the crescent-shaped, extended cap sleeve, with the following exceptions:

  Spread point E 6 inches or more.

  Measure up 3 inches to form a gathered section ending at D and F.

Figure 1



Sleeve with Vertical Pleat

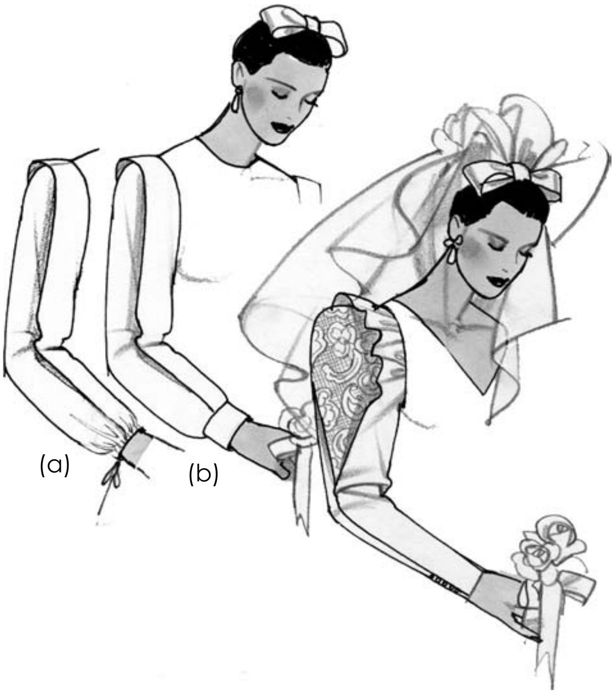
Design Analysis

A pleat is folded through the length of the sleeve and over the sleeve cap. The pleat is stitched together at the shoulder tip.

The sleeve can be developed with the dartless half-sleeve foundation. The hemline can be held by cuffs, elastic, or a drawstring (Design 1a, b). The underseam can be tapered to control fullness. If a cuff is desired, see sleeve cuffs section earlier in this chapter. Adjust the armhole using the instructions from earlier in the chapter. Design 2 is a thought problem.

Designs 1a, b

Design 2



Pattern Plot and Manipulation

Figure 1 Dartless Half Pattern

If the dartless sleeve is not available, see Dartless Sleeve Pattern section earlier in this chapter. For reference, the cap is A and the guideline (quarter-section) is X.

Figure 2

- Fold paper and square a line across the paper 8 inches down from the top.
- Place pattern on the fold; align the biceps line with the guideline. Secure.
- Trace the sleeve cap from A to X and trace the hemline.
- Measure the cap from A to X. Record.
- Shift the pattern 4 inches on guideline. Pattern is parallel with the fold. Secure.
- Trace to complete the pattern, starting from X.
- Extend X line using A to X measurement. Square across 4 inches and down to touch X, completing the sleeve draft. Mark the center of the pleat fold.
- Complete the pattern for a test fit.

Figure 1

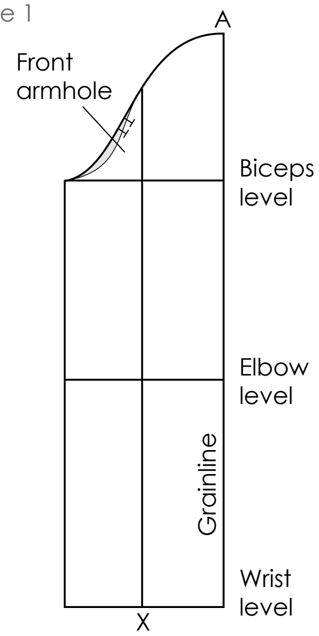
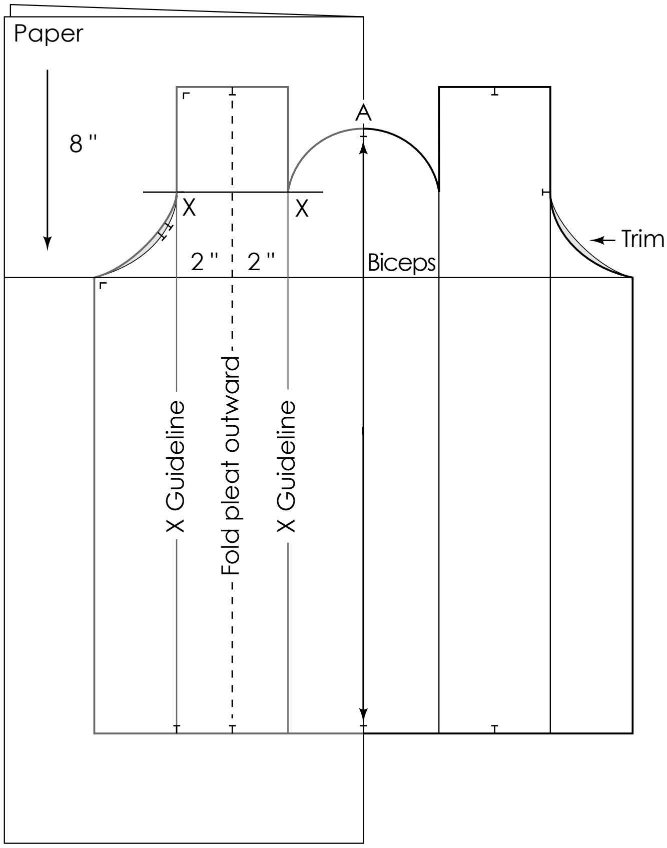


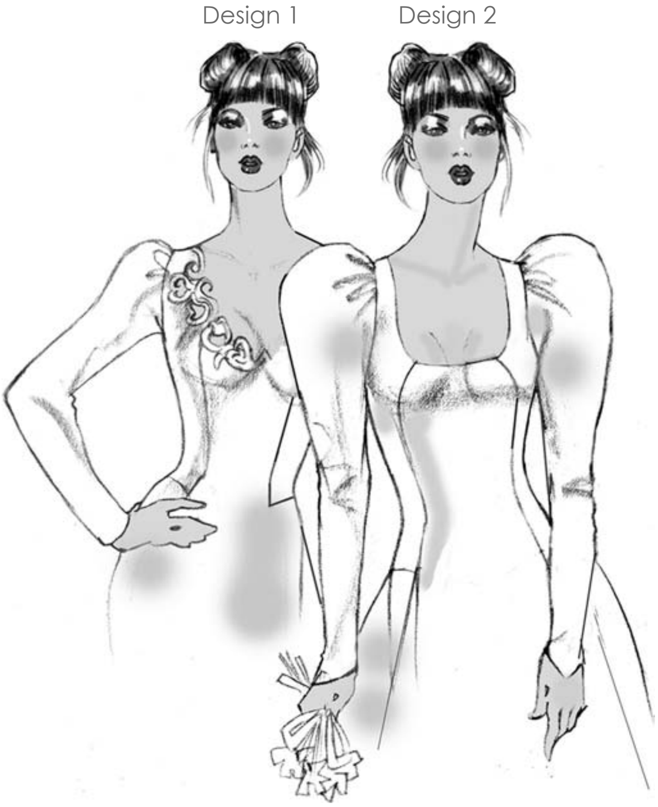
Figure 2



LEG-OF-MUTTON SLEEVES

Design Analysis

Design 1 is developed by enlarging the biceps and cap area, tapering the fullness toward the elbow level. Design 2 is developed by doubling or tripling the measurements given. Trim 1/2 inch from the shoulder tip. Blend to F/B armhole notches to balance the design.



Pattern Plot and Manipulation

Figure 1

- Trace the basic sleeve and all markings. Label cap A and B.
- Mark 4 inches down from cap on the grainline. Label C.
- Draw slash lines from C to underseams.
- Cut from the paper.

Figure 1

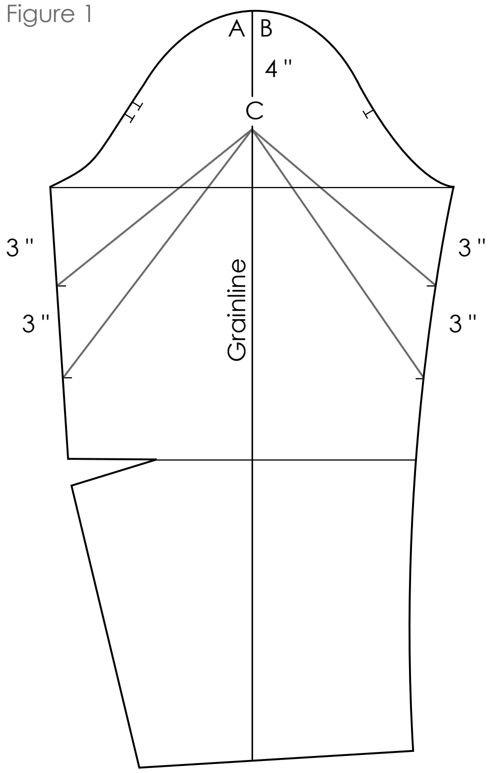
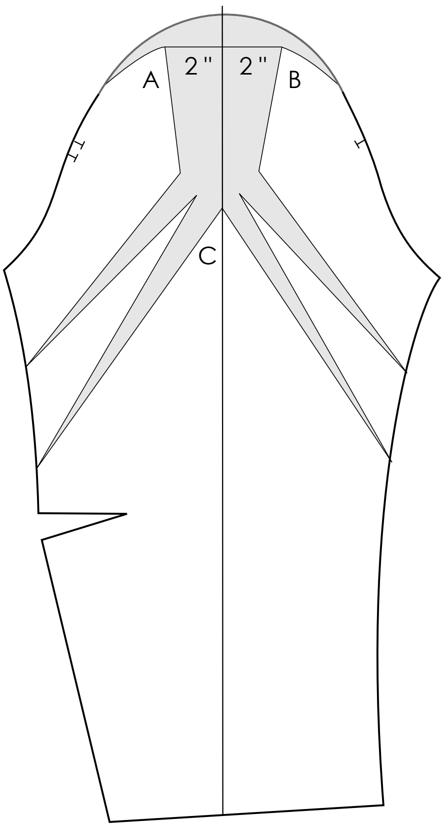


Figure 2

- Cut slash line to C and to, not through, underseams.
- Draw a vertical guideline in center of the paper.
- Place pattern on the paper, matching sleeve grainline with the guideline.
- Spread A and B sections 2 inches or more and spread remaining sections equally. Secure.
- Trace.
- Measure 1 1/2 inches up from cap and blend.

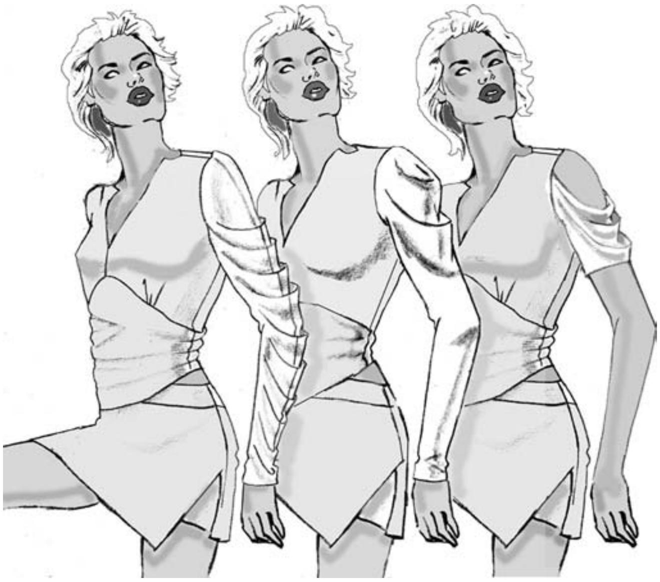
Figure 2



COWL SLEEVES

Design Analysis

The cowl sleeve drapes from the center of the sleeve cap to any desired depth (example: 5 inches). It is developed from the dartless back sleeve to any sleeve length. Designs 1 and 3 are practice problems.



Design 1 Design 2 Design 3

Pattern Plot and Manipulation

Figure 1

- Trace the dartless back sleeve.
- Mark A 1/2 inch from cap (eliminates cap ease). Omit instruction if the armhole was modified.
- Mark B 5 inches or more down from the cap. Connect A and B.
- Mark C 2 inches from A.
- Mark D between the biceps and elbow.
- Draw slash lines from C and D to B.
- Cut from the paper. Discard (shaded area at cap).
- Slash from B to, not through, C at cap, D at underseam, and from elbow level to underseam.

Figure 2

- Place pattern on fold, spreading sections until point A is 5 inches from fold. Spread more for a deeper cowl and secure.
- Trace the pattern outline and front sleeve underarm curve to paper underneath.
- Square a line from the fold to point A.

Fold-Back Facing

- Measure up 3 inches from the square line at the fold and draw a curve line to A.
- Cut from the paper, unfold, and trim front sleeve curve (shaded area). Draw the bias grainline.

Figure 1

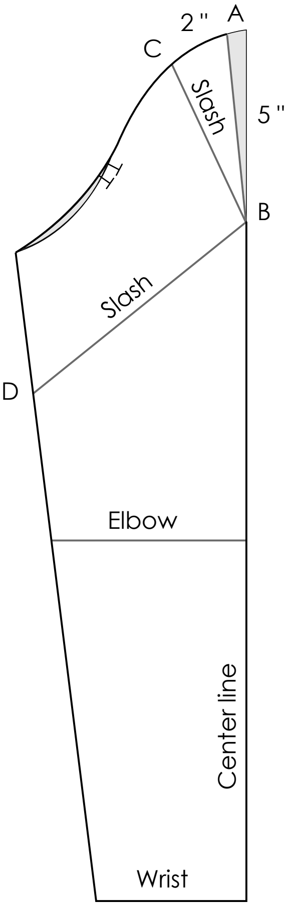
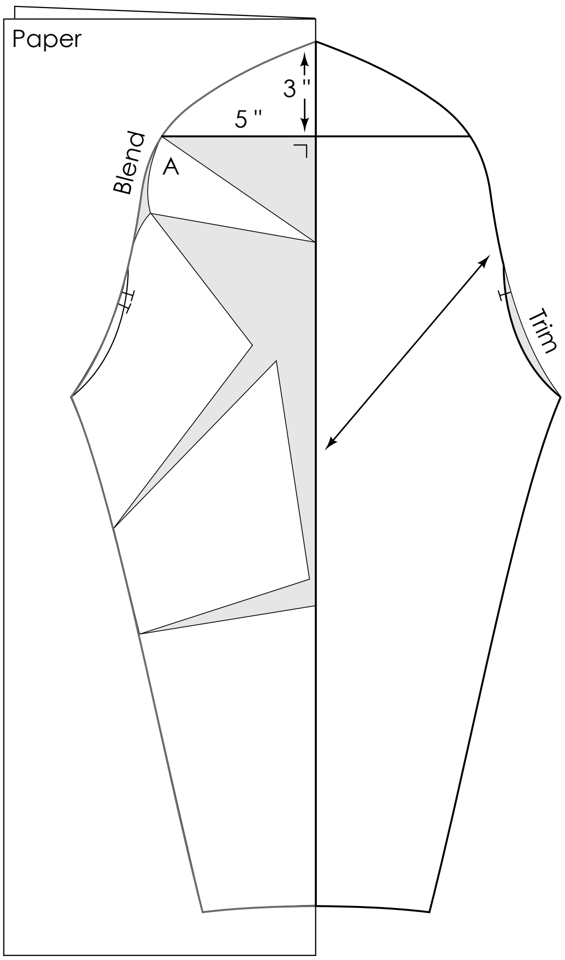


Figure 2



WEDDING SLEEVES

The traditional long, buttoned wedding sleeve is based on the basic sleeve, with the elbow dart transferred to the hemline. Other variations are also possible; see Designs 2, 3, 4, and 5.

Design Analysis

The sleeve of Design 1 has a pointed hem with loops and buttons along edge of the opening.

Pattern Plot and Manipulation

Figure 1

- Trace the basic sleeve.
- Draw a slash line from the dart point to wrist 2 inches in from the underseam. Label A.
- Label B at corner of the front underseam.
- Draw a guideline 1 inch over from the grainline and 1 1/4 inches down from the hem. Label C.
- Draw a styleline from C to A and B.
- Cut from the paper.

Figure 2

- Cut slash line to, not through, the dart point.
- Close the elbow dart. Tape.
- Trace the pattern and mark grainline.
- Mark placement for loops. Space as desired. (Dart leg can be stitched 1 to 2 inches down to shorten its length.)

Design 1

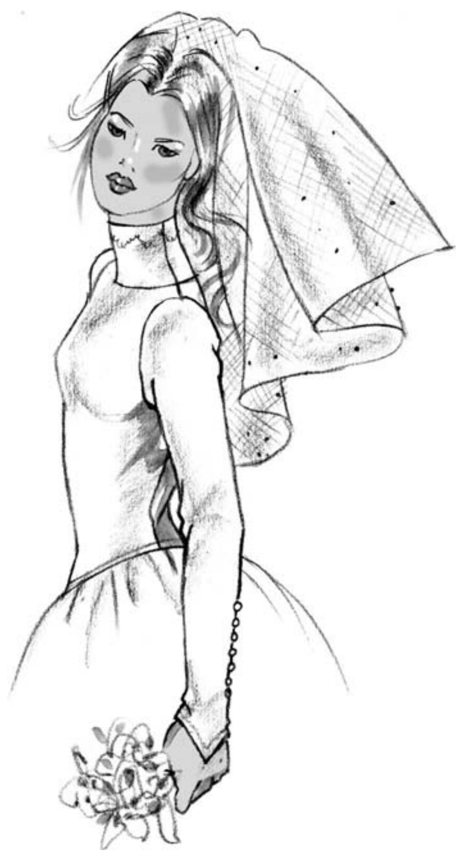


Figure 3 Facing

- Trace the sleeve section for the facing (indicated by the broken line in Figure 2).
- Separate facing at the dart point for seam allowance.
- Add seams and grainline.

Figure 1

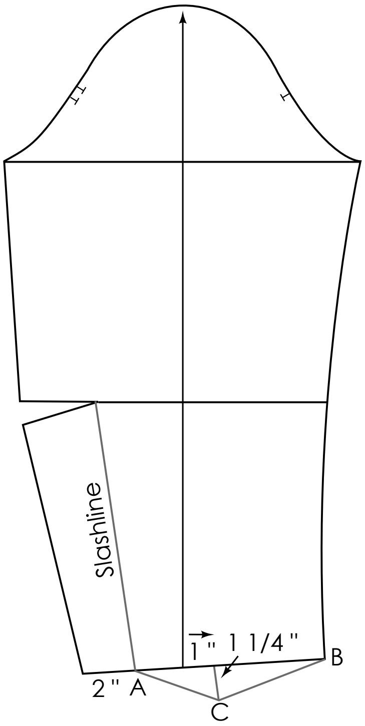


Figure 2

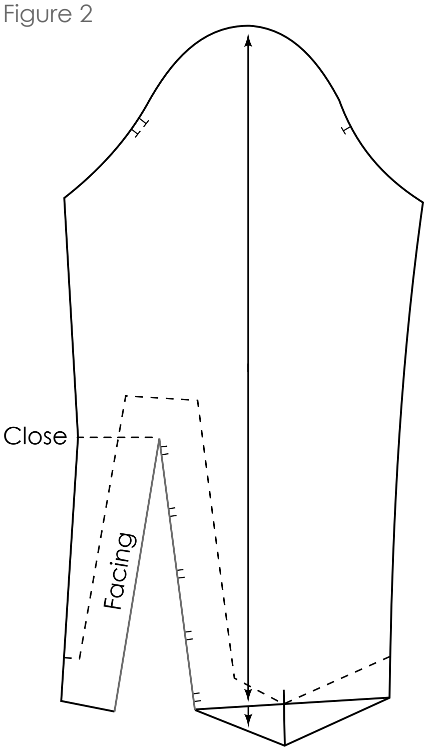
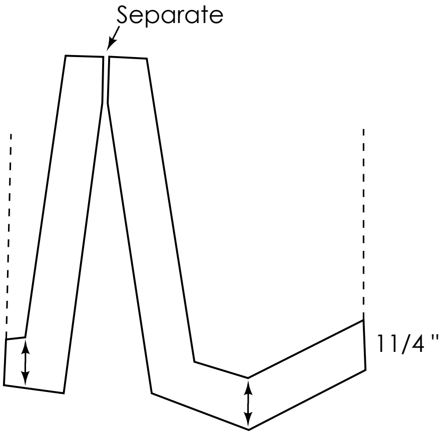


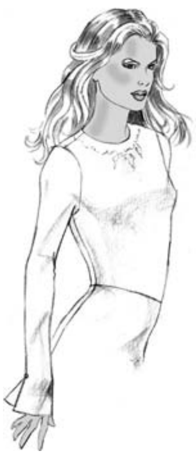
Figure 3

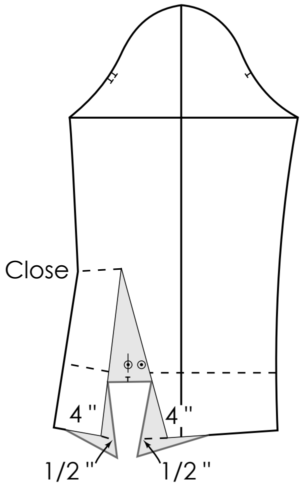


SLEEVE DESIGN VARIATIONS

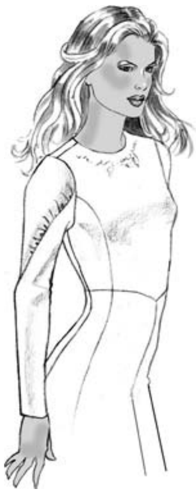
Designs 2, 3, 4, and 5 show possible sleeve variations. *Remember:* The dart can be transferred to *any* location around the pattern's outline.

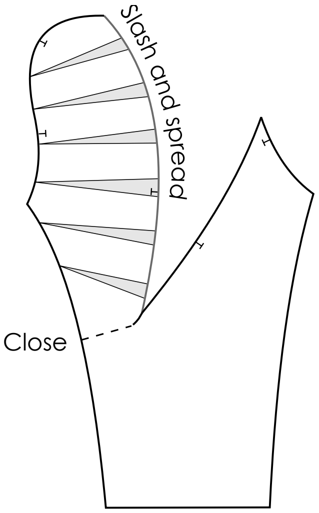
Design 2



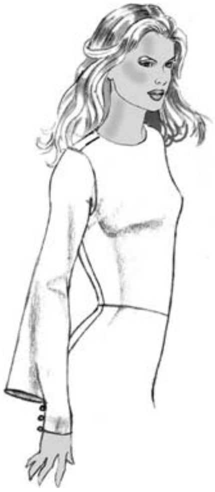

Close
4"
4"
1/2"
1/2"

Design 3




Slash and spread
Close

Design 4



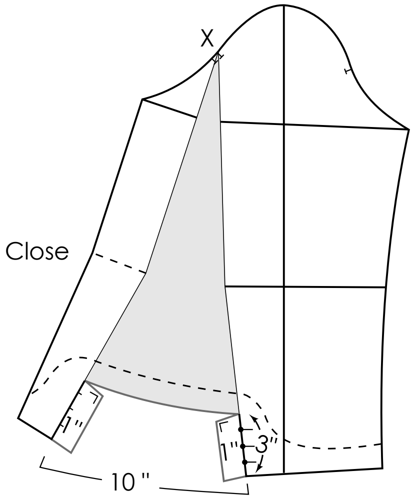

X
Close
1"
1"
3"
10"

Figure 2
- Cut section and tape sections together.

Figure 3
- Draw a series of slash lines. Cut and spread.
- Secure and trace.

Figure 1
- Plot and label.

Design 5

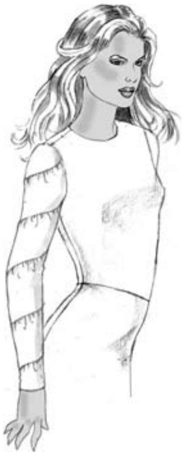
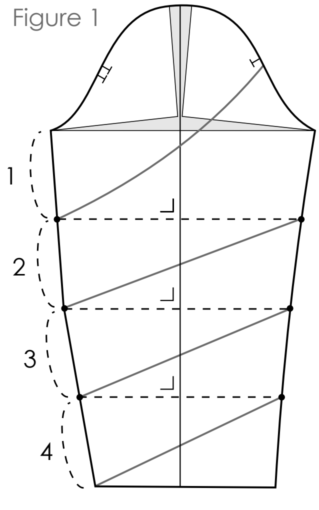


Figure 1



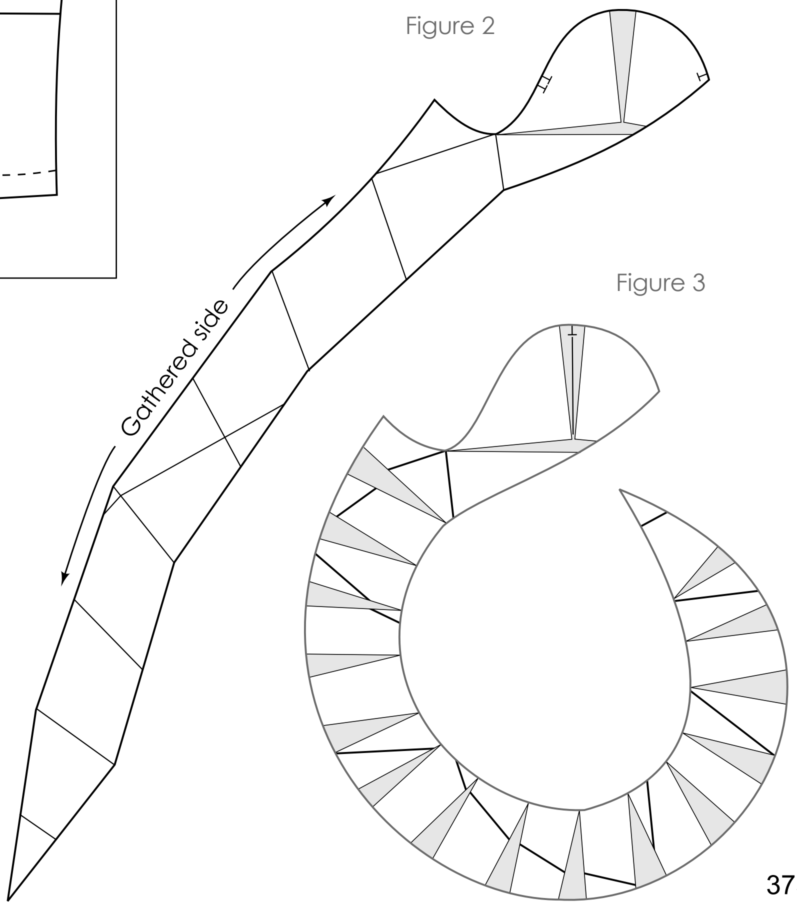
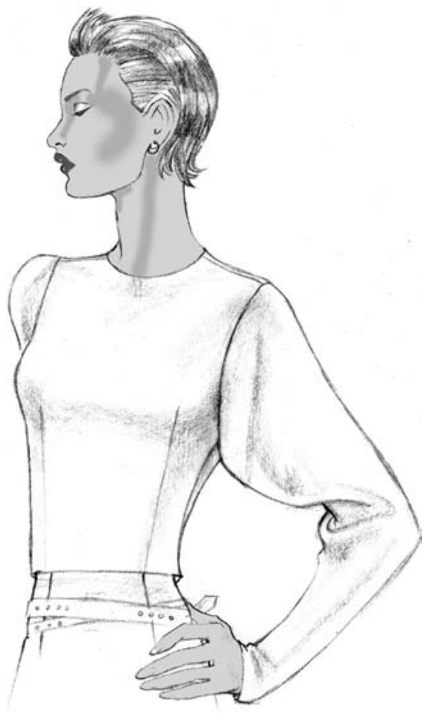


Figure 2

Figure 3
Gathered side

SLEEVES WITH LOWERED ARMHOLE



Design Analysis

Designs with deep-cut armholes (originally called Dolman sleeve) require sleeve and bodice modifications. The underarm seam of the sleeve must be increased in length an amount equal to the lowered bodice armholes; otherwise, the arm cannot be raised without strain on the upper garment (a diagonal fold will appear on the sleeve from the ball of the arm, draping slightly under the armhole). *Exception:* A very full garment with sufficient flare will allow the arm to move freely and will *not* require lengthening of the underarm of the sleeve to compensate for the *lowered* armhole.

Pattern Plot and Manipulation

Figure 1 Sleeve and Bodice

- Measure down 2 or more inches on the sleeve and bodice. Mark.
- Draw a curved line from marks to notches.
- Draw another curved line 2 inches below first line of the sleeve.
- Cut from the paper. Trim shaded areas.

Figure 2 Sleeve Modification

- Cut to, not through, the capline.
- Place on the paper, lifting each section 3 to 4 inches. Secure.
- Trace the sleeve, blending a line from corner of the cap to elbow level and sleeve cap.
- Cut from the paper.
- Adjust the armhole.

Figure 1

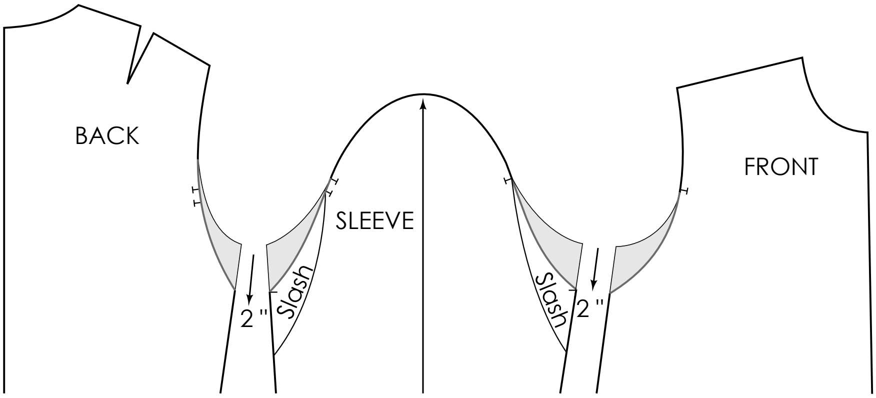
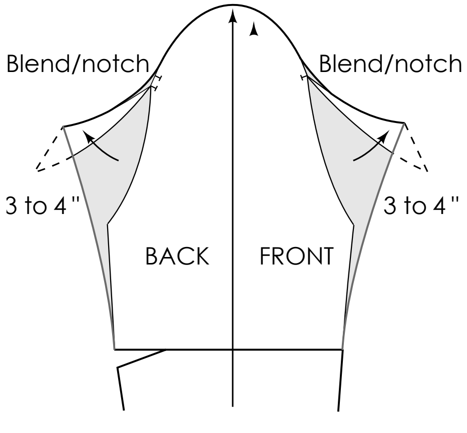
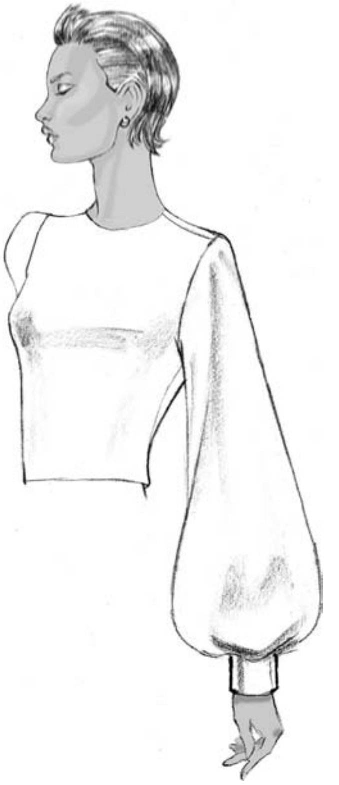


Figure 2



BASIC BISHOP SLEEVES



Design Analysis

The bishop is a billowy sleeve that hangs gracefully over the arm from a smooth cap. Length is added for blousing.

The sleeve draft is based on the shirt sleeve. The slash-spread and pivotal-transfer methods are illustrated.

To modify the armhole or sleeve cap, see Modifying Armhole to Reduce sleeve cap Ease section earlier in this chapter.

Bishop Sleeve Draft

Figure 1

- Trace the shirt sleeve and all markings.
- Number the panels.
- Label the grainline A and B.
- Mark the quarter-section X.

For cuff development, see sleeve cuffs section earlier in this chapter.

Figure 1

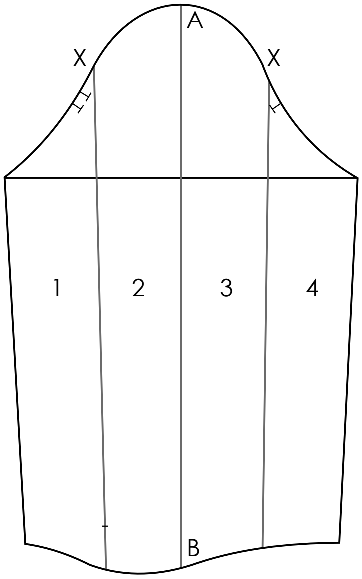
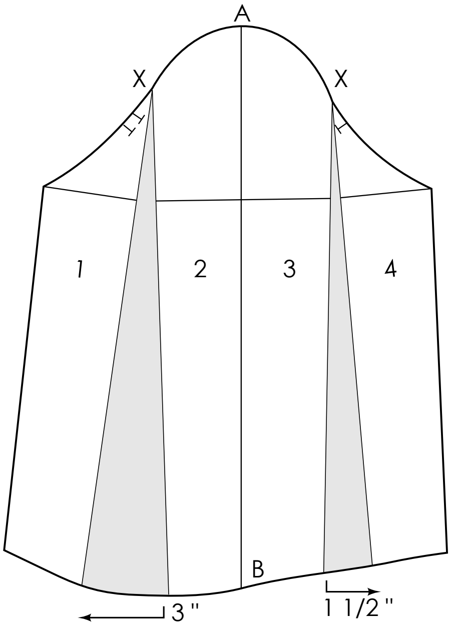


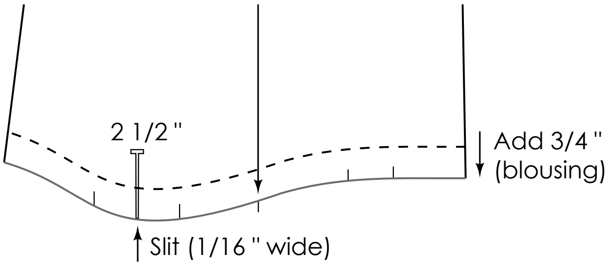
Figure 2a



Figures 2a, b

- Slash each panel (X) to sleeve cap.
- Place the A–B line of the sleeve on the guideline and spread 3 inches and 1 1/2 inches, as shown in Figure 2a.
- Blousing—add 3/4 inch parallel at the hem.
- Slit—2 1/2 inches long, 1/16 inch wide. Cross bar (Figure 2b).

Figure 2b



Pivotal-Transfer Method in Developing the Bishop Sleeve

This method is based on the shirt sleeve. Refer to previous page, Figure 1.

Figure 1

- Place A–B on the guideline. Trace from X to A to X and from C to D at the hem.
- Dot 3 inches from C and 1 1/2 inches from D.

Figure 1

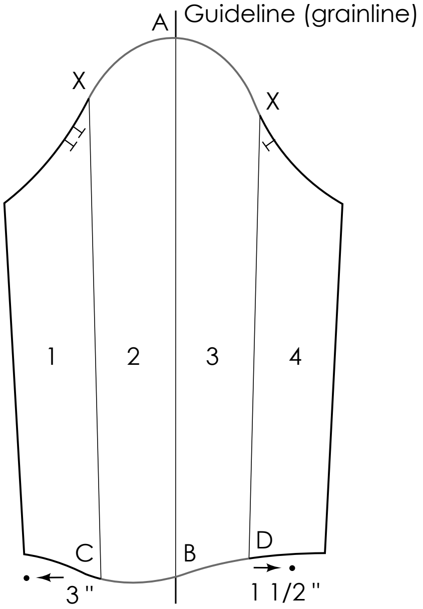

A
Guideline (grainline)
X
X
1
2
3
4
C
B
D
3 "
1 1/2 "

Figure 2

- Place a pushpin at X and pivot the pattern until C is in line with the dot mark. Trace X to C.

Figure 2

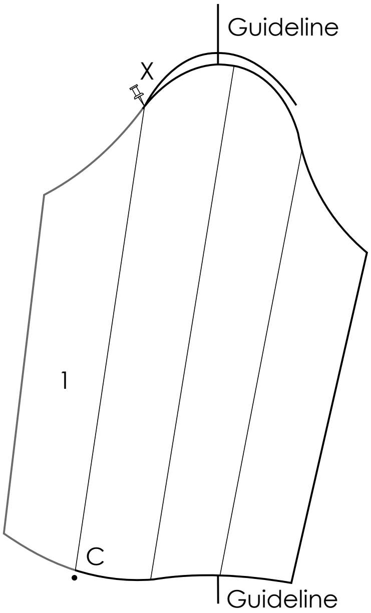

Guideline
X
1
C
Guideline

Figure 3

- Return the A–B line to the guideline.
- Place a pushpin at X and pivot the pattern until D is in line with the dot mark.
- Trace the sleeve from X to D.

Figure 3

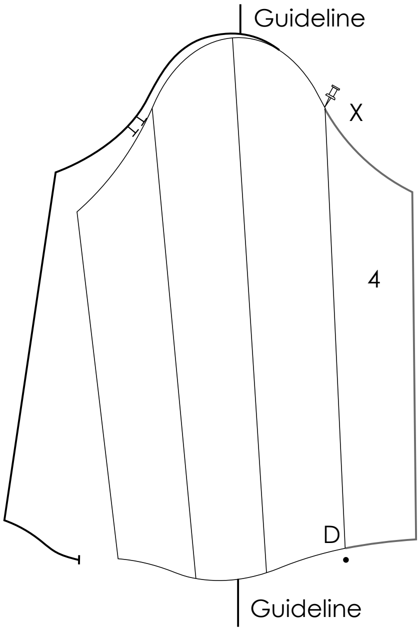
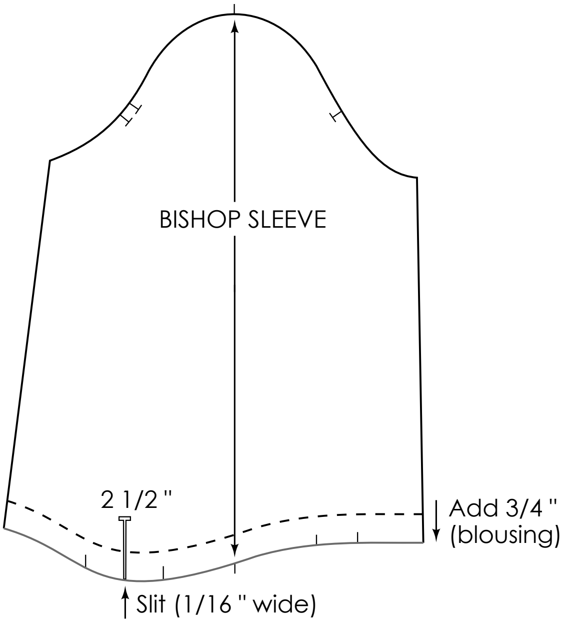

Guideline
X
4
D
Guideline

Figure 4

- Blend the hemline for blousing.
- Draw a slit line centered between the grainline and underseam. Cross bar.

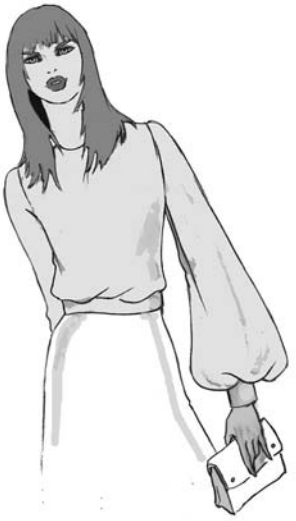
Figure 4


BISHOP SLEEVE
2 1/2 "
Add 3/4 " (blousing)
Slit (1/16 " wide)

EXAGGERATED BISHOP SLEEVE

Design Analysis

The exaggerated bishop sleeve is based on the bishop pattern, with greater fullness at the wrist and longer length for greater blousing.



Pattern Plot and Manipulation

Figures 1a, b

- Trace the basic bishop sleeve; see previous page, Figure 4. Mark quarter-sections X.
- Draw slash lines. Divide each quarter-section in half (eight panels).
- Cut from paper (Figure 1a).
- Cut up from hem to, not through, the sleeve cap.
- Spread as desired or follow illustration. Draw the pattern outline.
- Draw a curved hemline 1 inch or more below original length (for blousing), tapering to underseams (Panels 1 and 8).
- Draw a slit 2 inches long, 1/16 inch wide, and cross bar with notcher.
- Draw a grainline; cut and mark the notch. Complete the pattern for test fit (Figure 1b).

Figure 1a

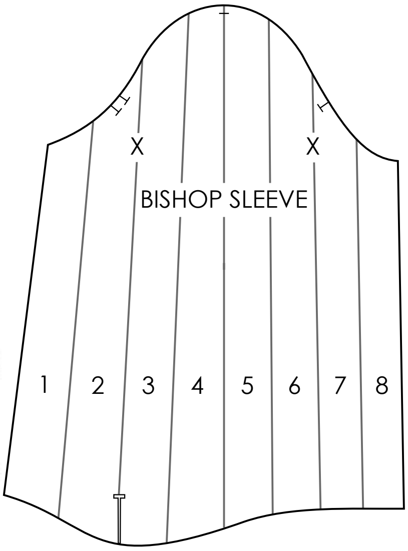
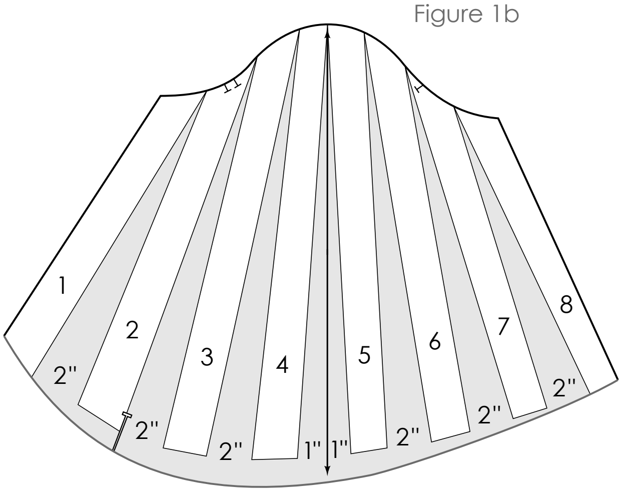


Figure 1b



SELF-EVALUATION TEST

Fill in the blanks. To check your answers, see page 805.

1. Name two basic sleeves: ______________, ______________.
2. Widest part of the basic sleeve is ______________.
3. Number of notches for the back sleeve is ______________.
4. Center cap notch shifts to ______________ ______________.
5. A short cap causes the sleeve to ______________.
6. Adding length to a cuffed sleeve creates ______________.
7. The center bicep is lifted for cap ______________, ______________, and ______________.
8. Shorten the _______ _______ for exaggerated puff sleeves.
9. One way to reduce cap ease is to ______________.
10. Add to ______________ and/or ______________ to reduce cap ease.
11. The average cap ease for an adult basic sleeve is ______________.
12. A basic sleeve aligns with or slightly in front of ______________.
13. Cap puckers indicate ______________ or ______________.
14. The greatest fullness for the bishop sleeve is where?
15. To raise a sleeve cap, ______________.

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

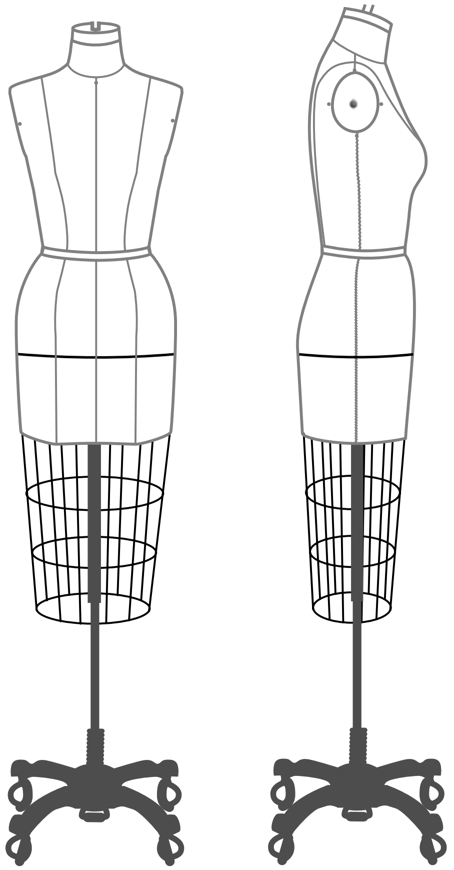
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____
2. Waist: _____
3. Abdomen: _____
4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
   B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
   Front = 1" (2 darts 1/2 to 5/8")
   Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle ____ floor ____
28. Crotch length ____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

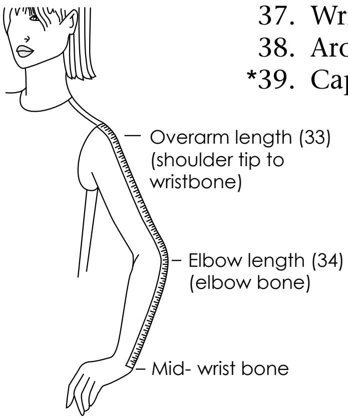
Personal Figure Variations

A. Head height relationship:
   Bust _____ Waist _____
   Crotch _____ Knee _____
B. Bust/back/chest relationship:
   Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
   Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
   Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
   Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
   Front: _____ Back: _____
M. Bust/waist = _____
   Waist/hip = _____
   Bust/hip = _____
N. Other variations: _____

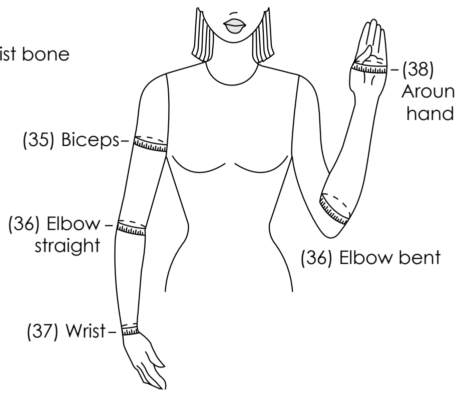
Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____

Length


Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone

Circumference



*Measuring the Arm

Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

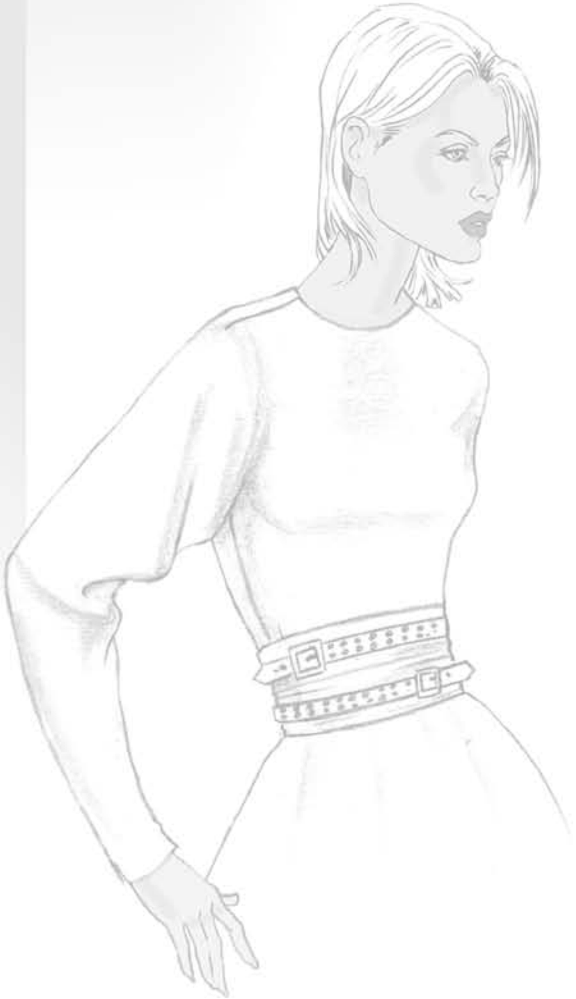
ANSWERS TO SELF-EVALUATION TESTS

1. Mounted, bodice/sleeve combination; **2.** Bicep; **3.** Two; **4.** Equalize cap ease or balance sleeve; **5.** Falls away from the model's side; **6.** Blousing; **7.** Pleats, darts, gathers; **8.** Shoulders; **9.** Lower F/B notches; **10.** Shoulder and/or side seam; **11.** 1-1/2 inches; **12.** Front side seam; **13.** Bicep too wide or cap too high; **14.** Back side of sleeve; **15.** Lifting the bicep

Kimono, Raglan, Drop Shoulder, and Exaggerated Armholes

From Chapter 15 of *Patternmaking for Fashion Design,* 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

Kimono, Raglan, Drop Shoulder, and Exaggerated Armholes



- INTRODUCTION TO SLEEVE-BODICE COMBINATIONS
- BASIC KIMONO
  - Kimono Draft
  - Short-Sleeve Kimono
- BASIC DOLMAN
- ONE-PIECE COMBINATIONS
  - Kimono with Shoulderline Seam
  - Kimono Without Overarm Seam
- KIMONO TORSO FOUNDATION
- KIMONO DRESS
- CAFTAN
- KIMONO WITH GUSSETS
- RAGLAN SLEEVE
  - One-Piece Raglan
- RAGLAN DESIGN AND VARIATIONS
  - Armhole Princess
  - Yoke with Flare Sleeve
  - Raglan Drop Shoulder
- DROP SHOULDER
  - Drop Shoulder Draft
  - Drop Shoulder Variations
  - Designs Based on Raglan Foundation
- EXAGGERATED ARMHOLES
  - Deep-Cut Square Armhole
- SELF-EVALUATION TEST

INTRODUCTION TO SLEEVE-BODICE COMBINATIONS

The sleeve and top of any garment (blouse, dress, jacket, or coat) can be combined in a variety of ways, categorized as follows:

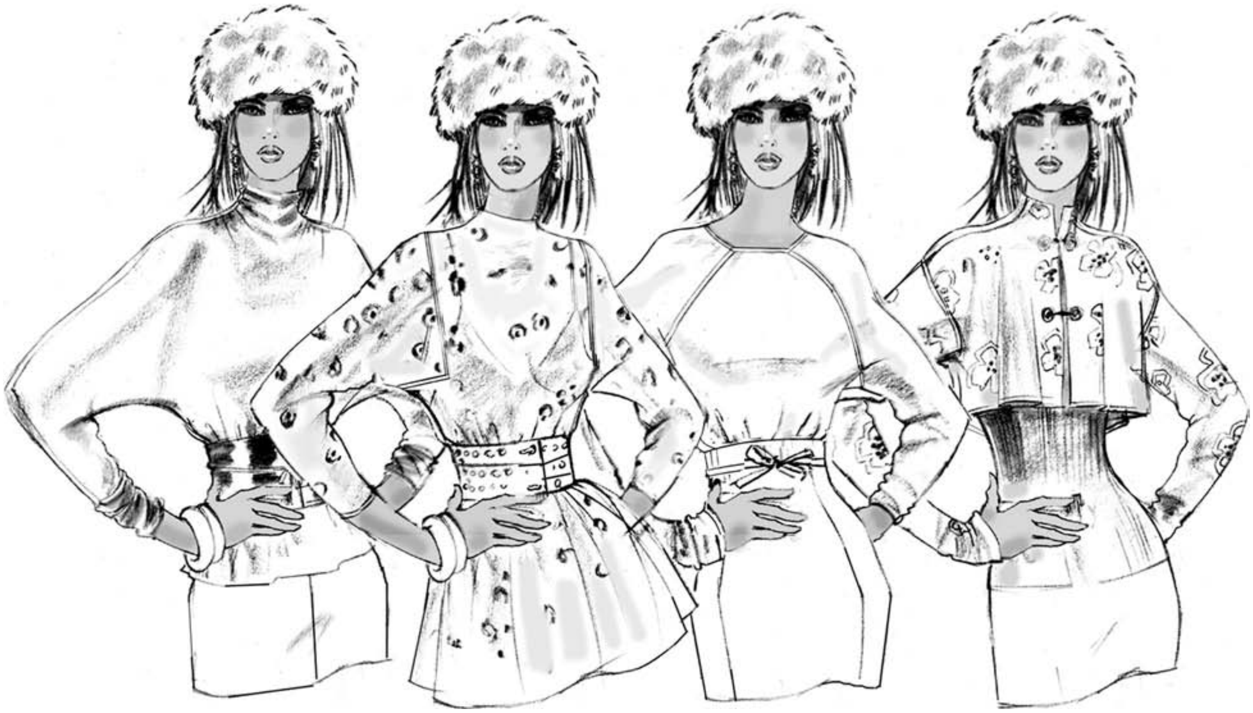
Kimono designs. The sleeve is all-in-one with the top garment.

Deep-cut armhole. The armhole section of the garment combines with the sleeve.

Raglan designs. The sleeve combines with part of an armhole and shoulder area of the garment.

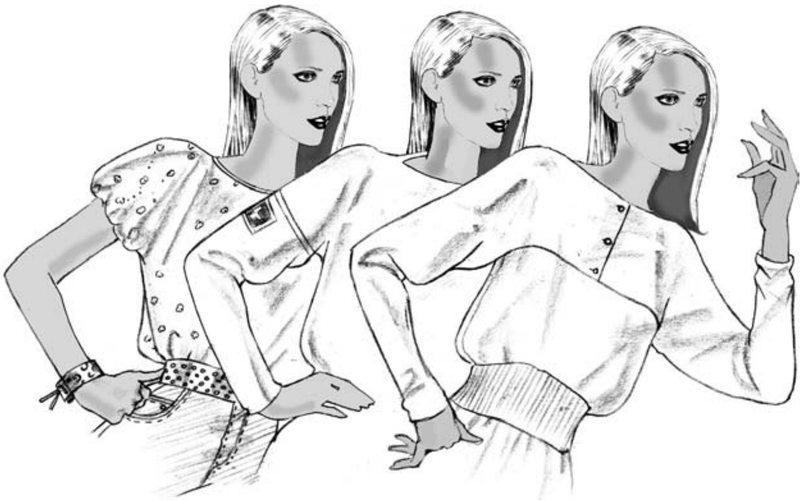
Drop shoulder designs. Part of the sleeve cap combines with the garment. The garment can be developed with or without the lower sleeve, or the lower sleeve can be attached to the garment.

Each of the foundation patterns can be used to develop other design variations by exaggerating their special characteristics or by changing the style-line position.



BASIC KIMONO

The Western-style kimono is developed by combining the sleeve length with the bodice or top. The basic kimono is the basis for developing the dolman sleeve. The kimono can be adapted and modified for a variety of other designs, several of which are illustrated. (The kimono underseam can end anywhere along the side, even extending to the hemline for the "batwing" dress.) With the armhole absorbed into the kimono design, compensation must be made to the front bodice armhole to avoid strain when the arm is in a forward position. This is corrected by transferring part of the dart excess to the mid-armhole before the kimono pattern is developed. The back shoulder dart is transferred to the mid-armhole. To draft a kimono based on the torso foundation, see Kimono Torso foundation section later in this chapter.



Kimono Draft

Figure 1 Back Pattern Modification

- Allow enough paper to draw the kimono sleeve.
- Trace the basic back pattern, transferring the shoulder dart to mid-armhole.

Figure 2 Front Pattern Preparation

- Trace and cut the basic front pattern.
- Draw slash lines from mid-armhole and dart point to bust point.
- Slash to, not through, the bust point. Set aside until the back draft is complete.

Figure 1

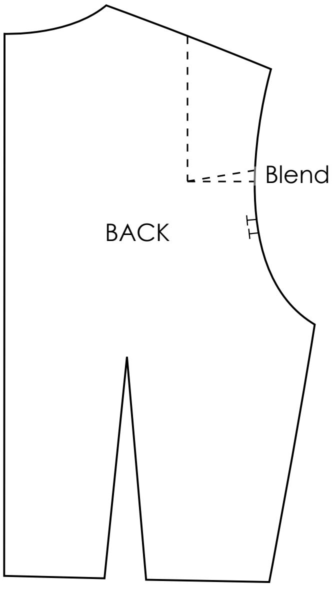


Figure 2

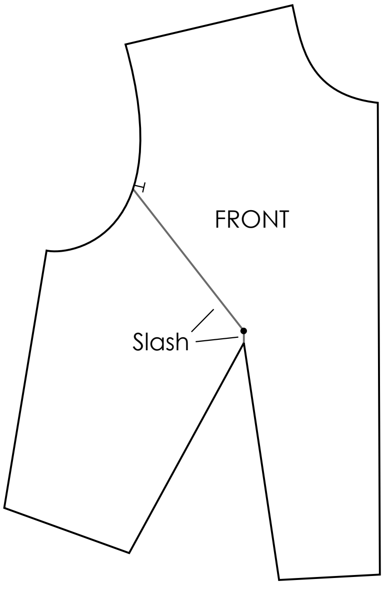


Figure 3

- Mark 1/4 inch up from the shoulder tip.
- Place a ruler at mid-shoulder, touching the mark, and draw the length of the sleeve.
- Square a line one-half of the around-hand measurement.
- Draw a line to the armhole.
- Draw the underseam to the desired shape.
- Cut from the paper. Trace a second copy and mark the original shoulder tip as a guide.

Figure 3

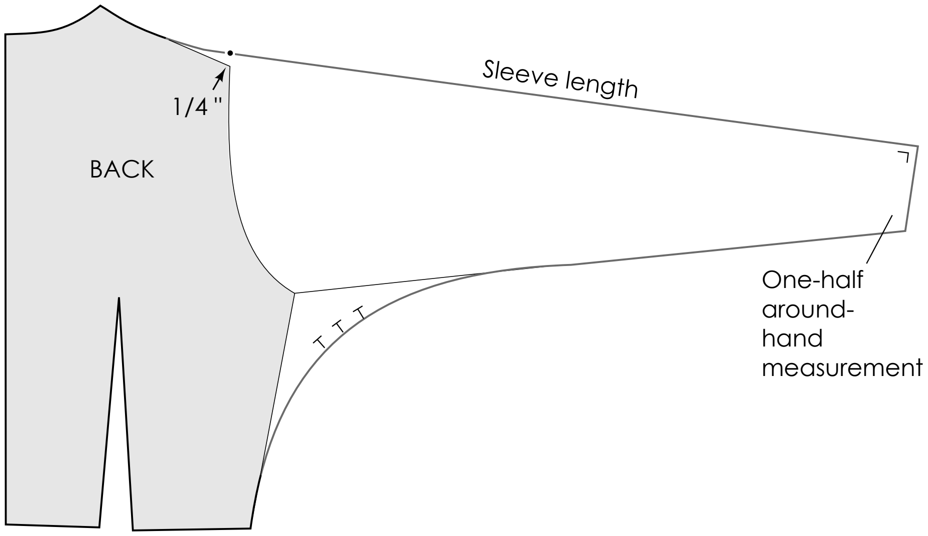
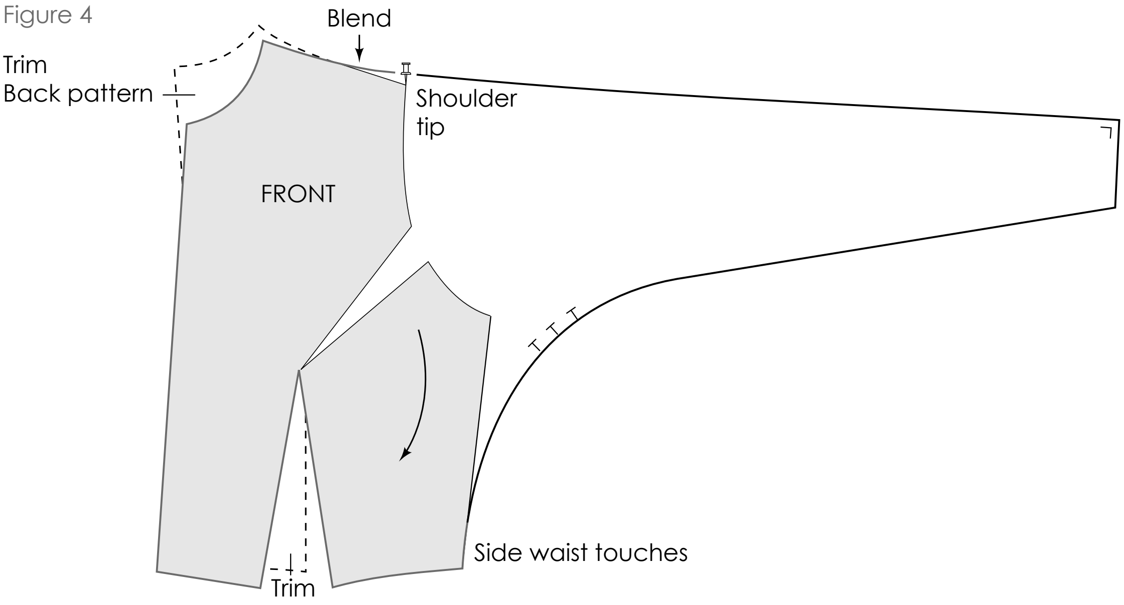

Sleeve length
1/4 "
BACK
One-half around-hand measurement

Figure 4

- Lay the front pattern on top of the traced copy, and place a pushpin at the shoulder tip to the shoulder mark of the back pattern.
- Close the waist dart until the side waist touches the side waist of the back. (Release the bust point, if necessary.) Secure.
- Trace the front pattern in red pencil from mid-shoulder and to the side front waist. The sleeve is now a part of the front pattern. Remove pattern.
- Blend the front shoulderline to the mid-shoulder of the traced back pattern.
- Cut around the front pattern and sleeve.
- Complete the pattern for a test fit.

Figure 4


Blend
Trim
Back pattern
Shoulder tip
FRONT
Side waist touches
Trim

Figures 5, 6

- Complete the front and back patterns.
- Mark notches at front and back shoulder tips.
- Draw the grainline and complete pattern for a test fit.

Figure 6

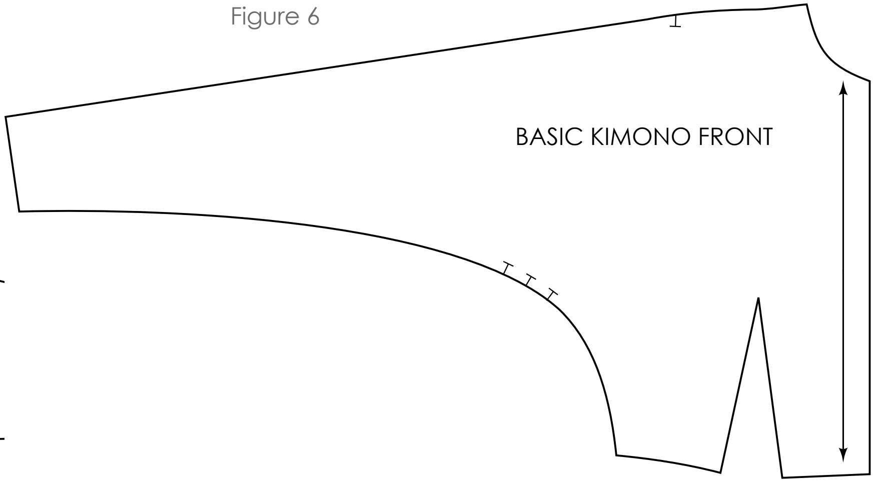
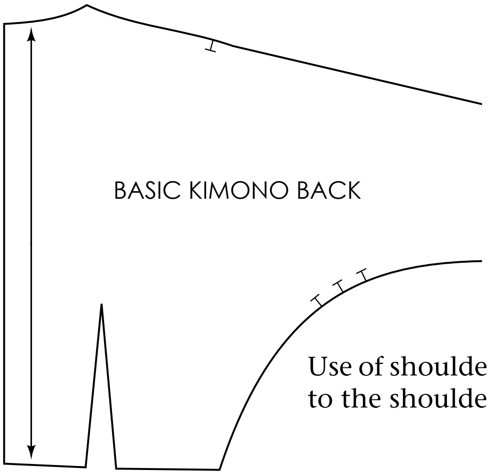
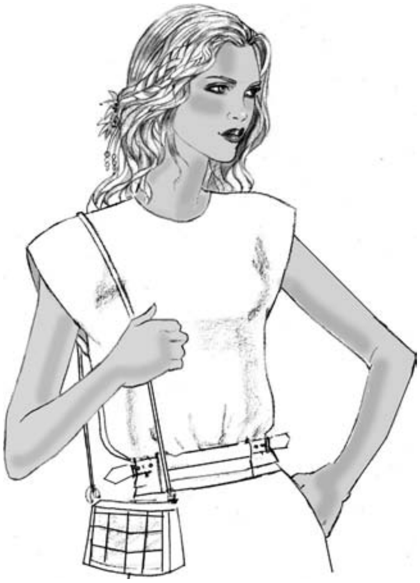

BASIC KIMONO FRONT

Figure 5


BASIC KIMONO BACK

Use of shoulder pads does not require adding to the shoulder tip.

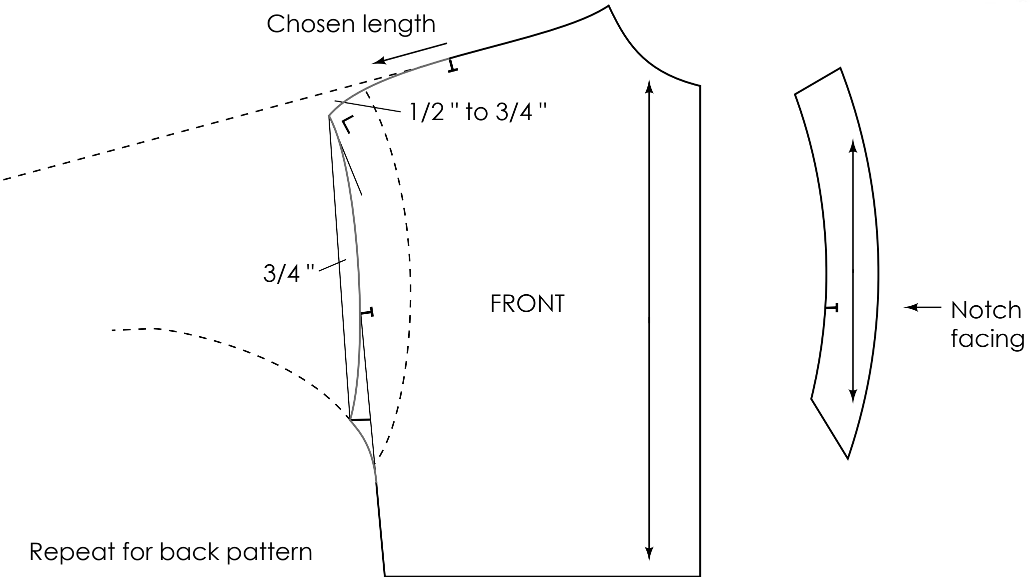


Short-Sleeve Kimono

Figure 1

The kimono sleeve can be cut to any length. A popular style is the over-shoulder short sleeve. Follow the illustration in developing this design. Note that the overarm seam is curved to prevent a point at the joining seams. A facing is required for the curved line.

Figure 1

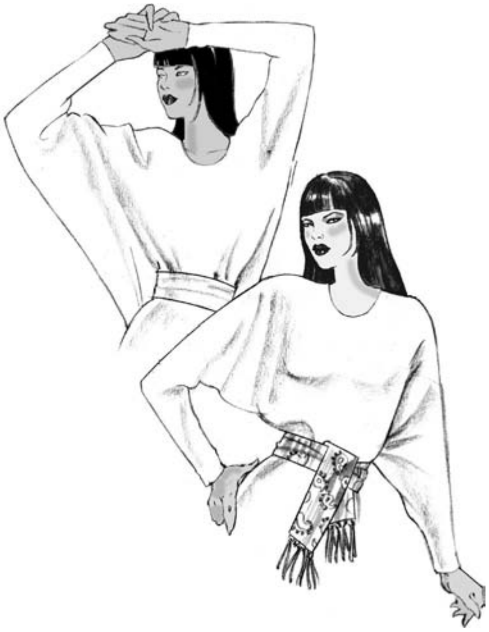

Chosen length
1/2 " to 3/4 "
3/4 "
FRONT
Notch facing

Repeat for back pattern

BASIC DOLMAN

Design Analysis

The dolman has lowered underseams with exaggerated folds under the arms, providing for a high arm lift. It is developed from the basic kimono. Originally a dolman was a lowered armhole with a set-in sleeve.



Pattern Plot and Manipulation

Figures 1, 2

- Trace front and back kimono foundation.
- Draw slash lines from the shoulder tips, ending 3 to 4 inches up from side waist.

Figure 1

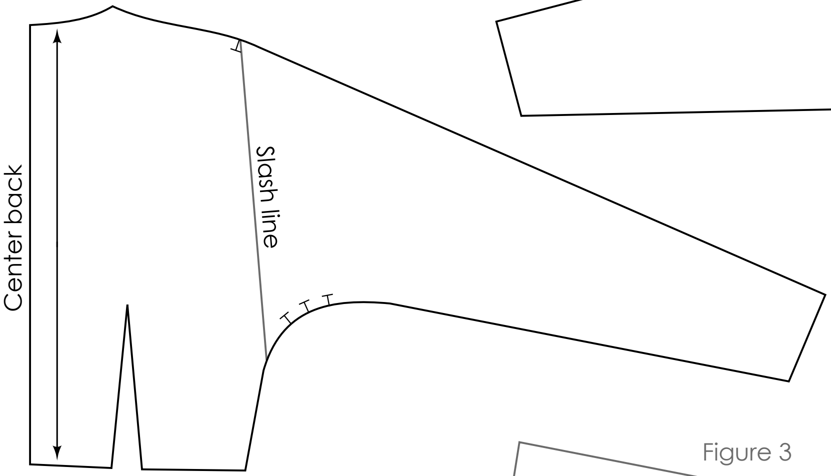


Figure 2

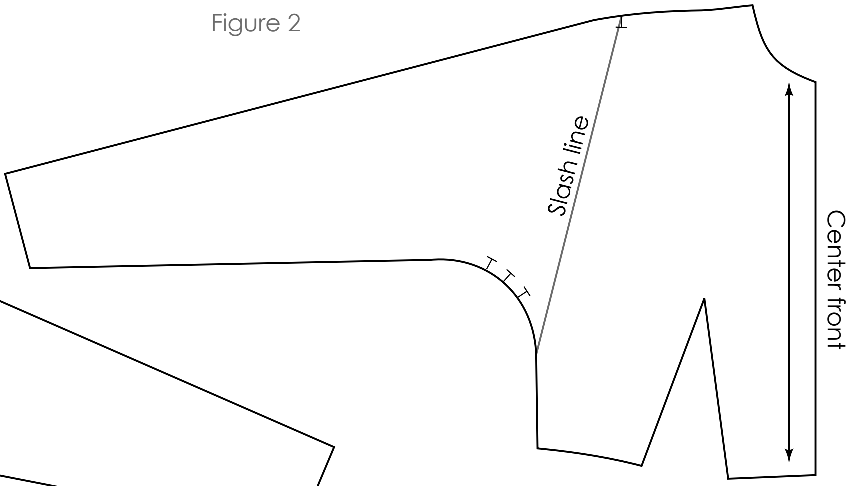


Figure 3

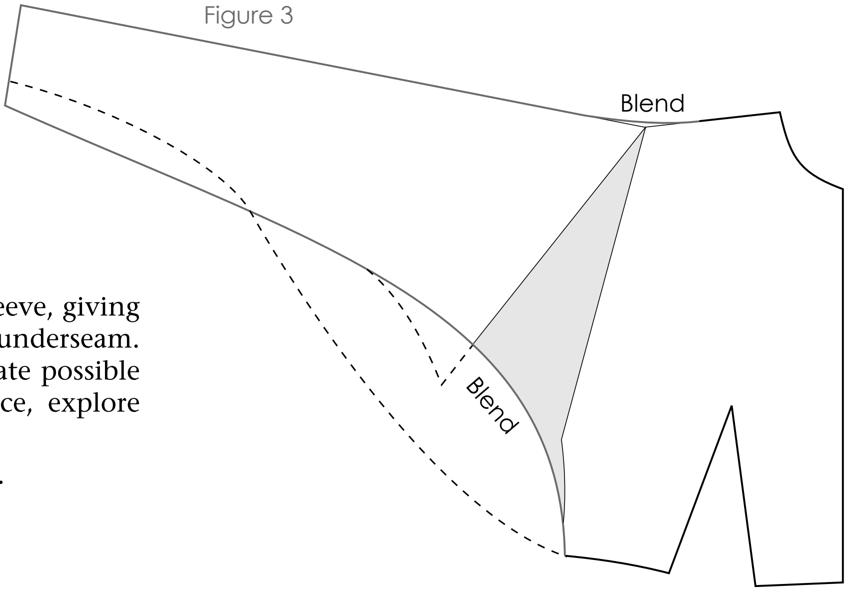


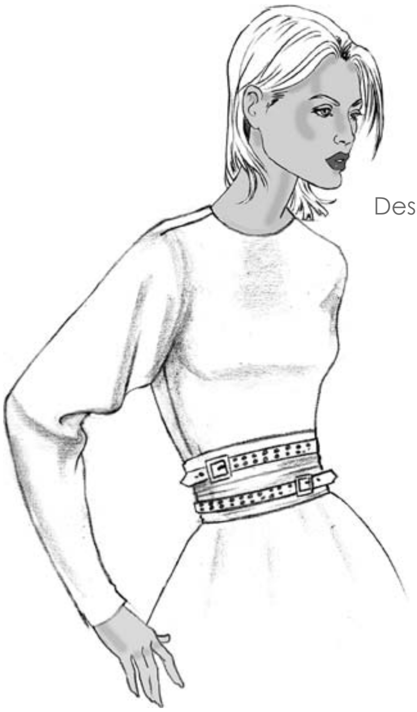
Figure 3

- Slash or pivot to spread underarm sleeve, giving as much lift as desired. Blend the underseam. Bold and uneven broken lines indicate possible dolman sleeve stylelines. For practice, explore other design variations.
- Repeat for back and true underseams.

ONE-PIECE COMBINATIONS

One-piece combination designs are developed by aligning the front and back patterns along either the sleeve (Design 1) or the shoulder (Designs 2 and 3). The instructions for the basic kimono also apply to the dolman, raglan, or kimono with gusset.

Use the following illustrations as a guide for developing the designs, noting the special instructions that follow:



Design 1

Grainline Options

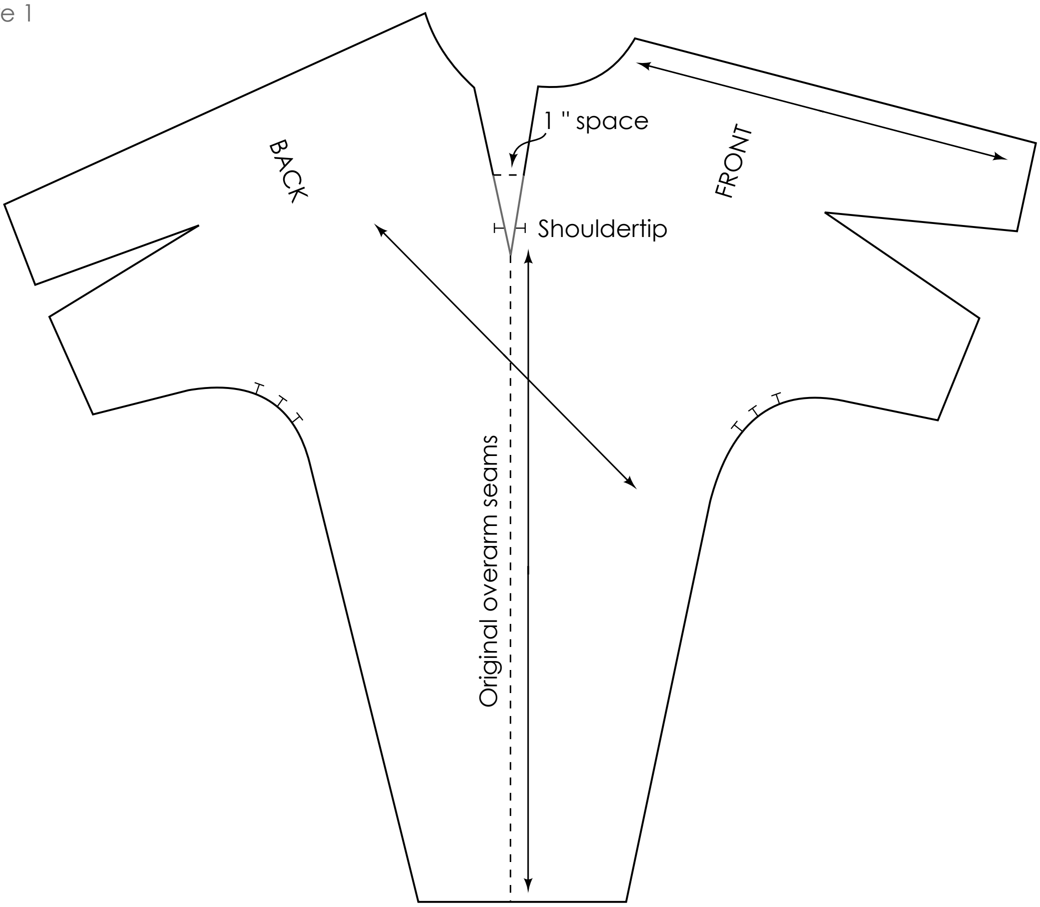
- Parallel with center front
- Bias
- Along original overarm seam (see Figure 1)

Kimono with Shoulderline Seam

Figure 1

- Place overarm seams together, allowing 1 inch between shoulder tips.
- Trace.
- Blend shoulders to meet about 2 1/2 inches below shoulder notch.

Figure 1



Kimono Without Overarm Seam

Prepare the pattern by placing the front and back shoulderlines together and trace.

Design 2 The sleeve is gathered at hemline (Figure 1).

Design 3 Tapered hemline and a blouson: Draw a line connecting the corners of the sleeve. Mark the center and draw a line to the shoulder tip. Use the wrist measurement (when cut in stretch knit) or entry measurement and draw the curve of the underarm. Add fullness to the underseams and add 1 to 2 inches to the length for blousing. Draw a blending line across the hemline (uneven broken line; Figure 2).

Design 2

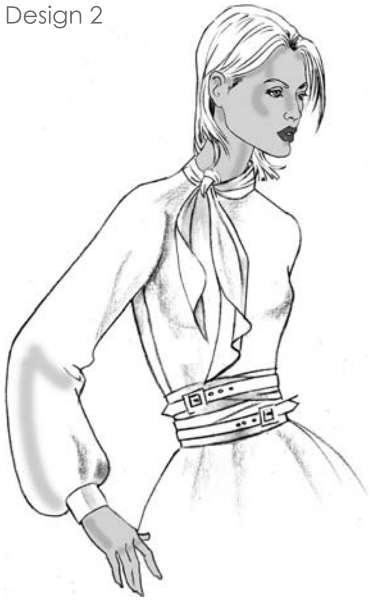
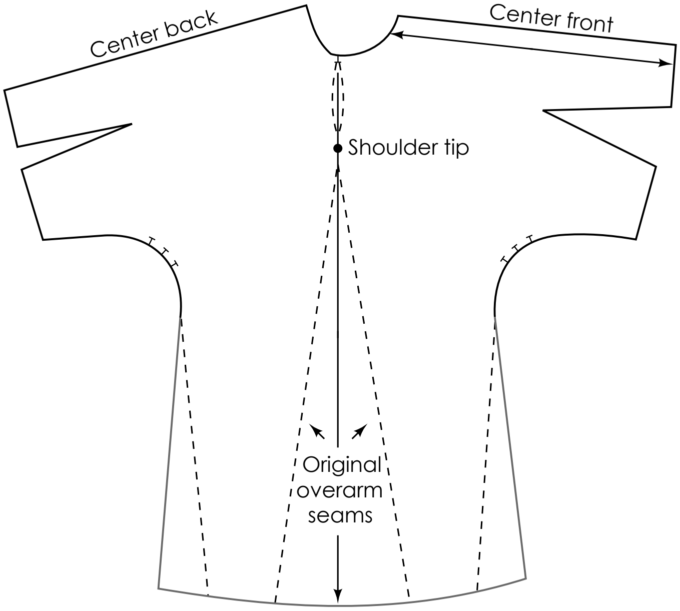


Figure 1


Center back
Center front
Shoulder tip
Original overarm seams

Design 3

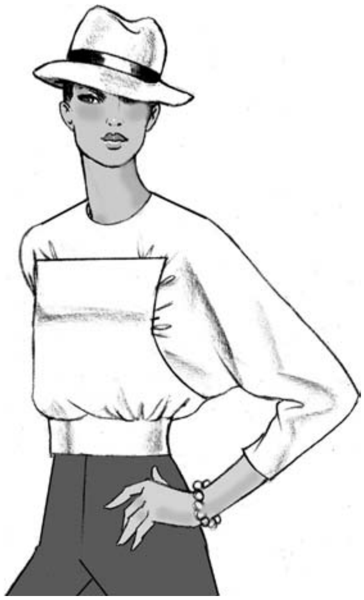
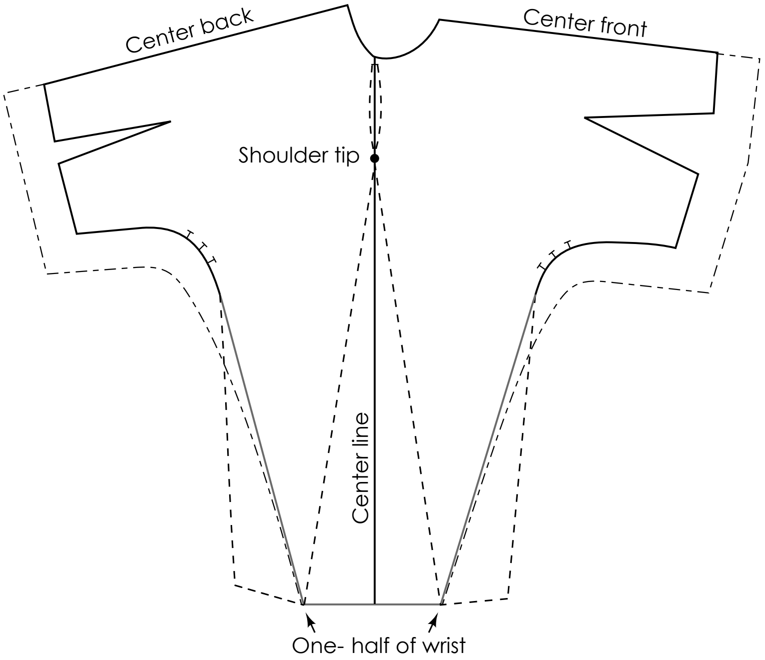


Figure 2


Center back
Center front
Shoulder tip
Center line
One- half of wrist

KIMONO TORSO FOUNDATION

The kimono torso foundation can be developed with the two-dart front and back patterns or the basic torso foundations. The front and back patterns are drafted together and separated at completion of the draft. Use red pencil to draft the front pattern.

Pattern Plot and Manipulation

Figure 1

- Trace back torso foundation except the armhole. Label side seam A (black line).
- Draw a guideline through the shoulder/neck parallel to the center back. Label X.
- Place the front torso on level with the back HBL and shoulder/neck touching X guideline. The front and back center line should be parallel.
- Trace front pattern starting at shoulder tip and ending at the side dart leg (blue line).

Follow the instruction even if your patterns line up differently than the example. Center dot marks at the shoulder/neck, shoulder tips (B, C), and side seams.

Figure 1

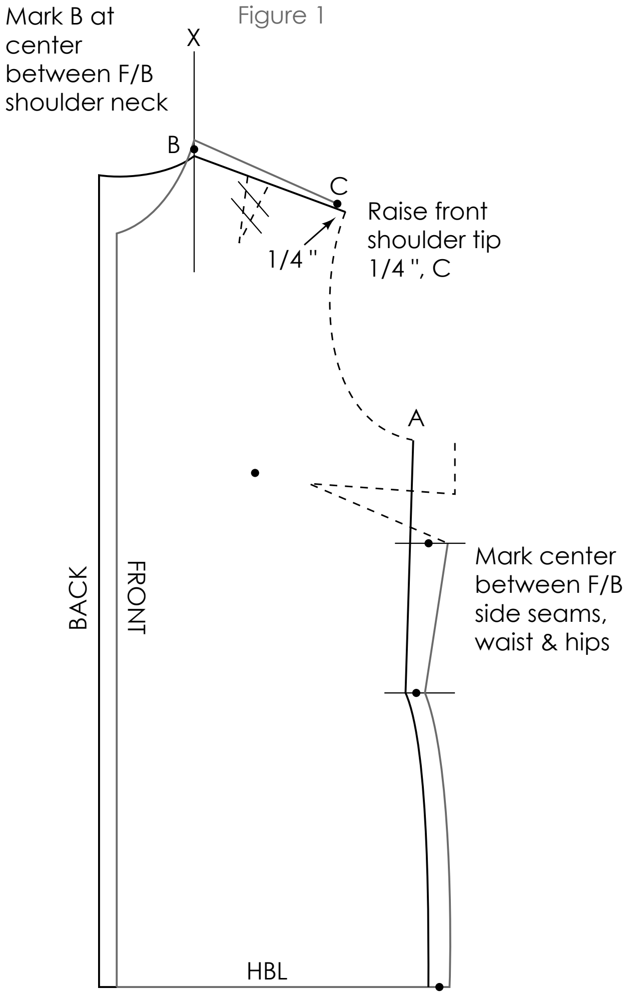
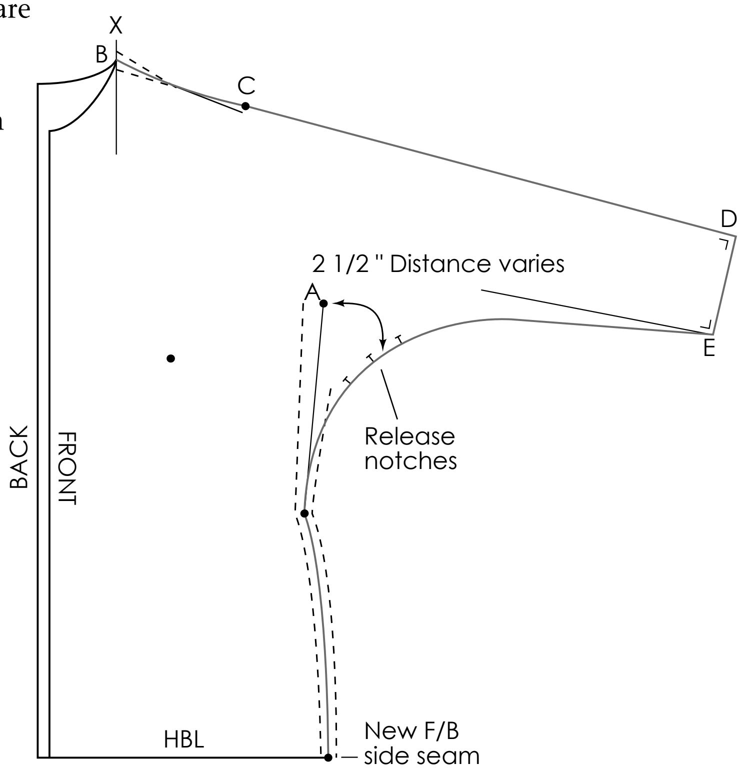

Mark B at center between F/B shoulder neck
X
B
C
Raise front shoulder tip 1/4 ", C
1/4 "
A
Mark center between F/B side seams, waist & hips
BACK
FRONT
HBL

Figure 2

- Draw a line from B to C and continue the line to sleeve length. Label D.
- D to E = half of the entry measurement square from D.
- Square a short line from E.
- Draw a new side seam, blending through each mark.

The underseam can be drawn as shown or it can be of any shape.

Figure 2


X
B
C
D
2 1/2 " Distance varies
A
E
Release notches
BACK
FRONT
HBL
New F/B side seam

Figures 3, 4

Separating the Patterns

- Place a paper under the draft and staple together. Cut the outline of the pattern.
- Remove the underneath copy.
- Label "back kimono torso."
- Trim the front neckline and center line from the draft.
- Label "front kimono torso."

Figure 3

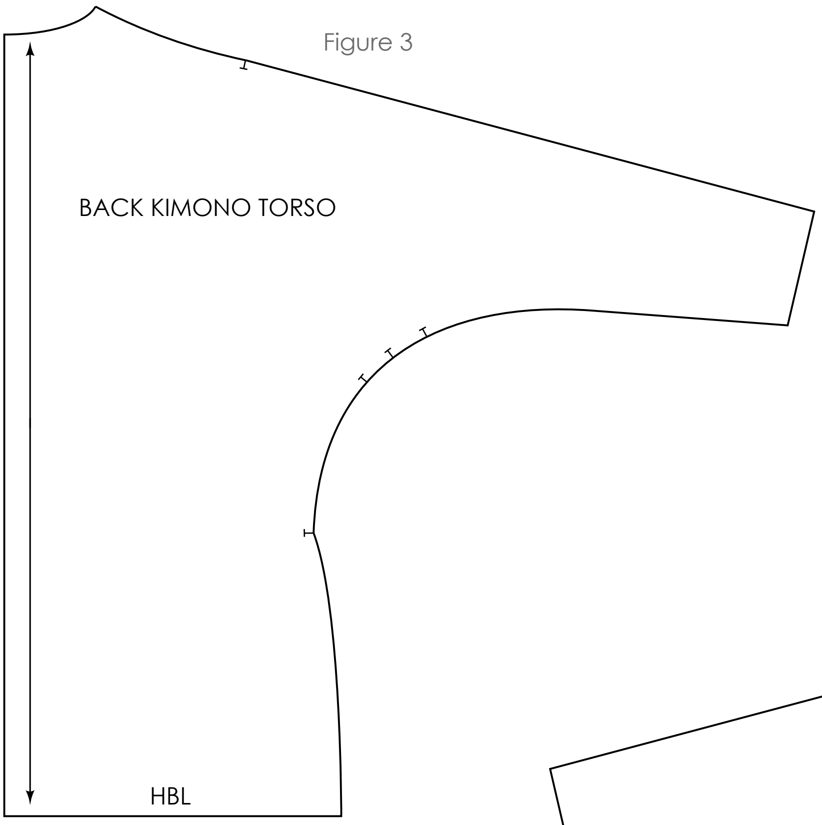
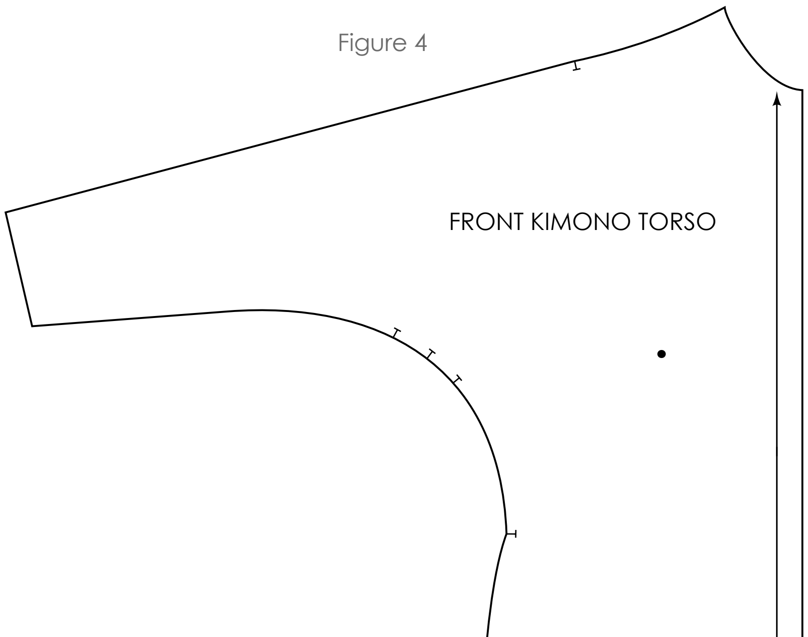
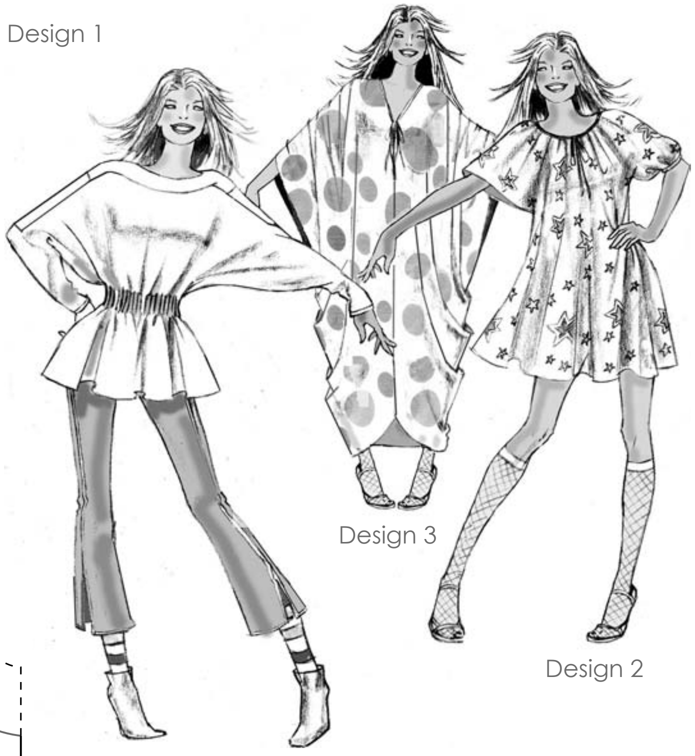

BACK KIMONO TORSO
HBL

Figure 4


FRONT KIMONO TORSO
HBL

KIMONO DRESS


Design 1
Design 3
Design 2

Design Analysis: Designs 1 and 2

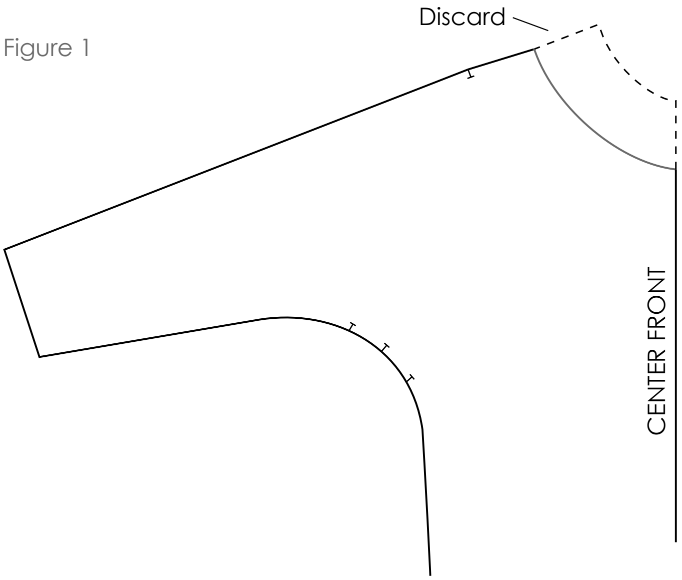
Design 2 is based on the kimono foundation. The basic neckline is cut away before fullness is added around the neck for gathers. The sleeve is either shortened for a loose-flowing sleeve or gathered at the hemline and banded or encased with elastic. The front pattern is copied for the back pattern.

Pattern Plot and Manipulation

Figure 1

Trace the front kimono foundation and draw a scoop neckline as shown. After the front pattern has been modified, it is copied for the back pattern.

Figure 1

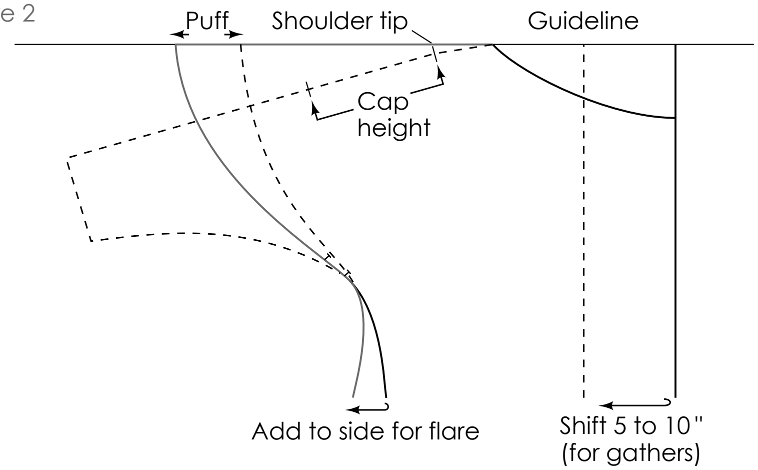

Discard
CENTER FRONT

Design 2

Figure 2

Square a line. Place the kimono pattern in the square and shift to desired fullness for gathers (example: 5 to 10 inches). Add to side seam 5 inches or more. Draw desired sleeve length from shoulder tip and add 2 inches for "puff." Draw a curved hemline for sleeve. Draw a sleeve band, if required. Trace for back pattern.

Figure 2

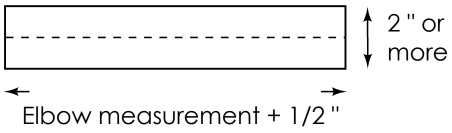

Puff
Shoulder tip
Guideline
Cap height
Add to side for flare
Shift 5 to 10"
(for gathers)

The sleeve entry can be flared, or controlled by elastic (add seam for fold-over) or by a sleeve band, as illustrated.

Figure 3

- Sleeve band.
- Length to elbow measurement, plus 1/2 inch. Record.
- Width: 2 inches, or more.

Figure 3


2" or more
Elbow measurement + 1/2"

CAFTAN

Design Analysis: Design 3

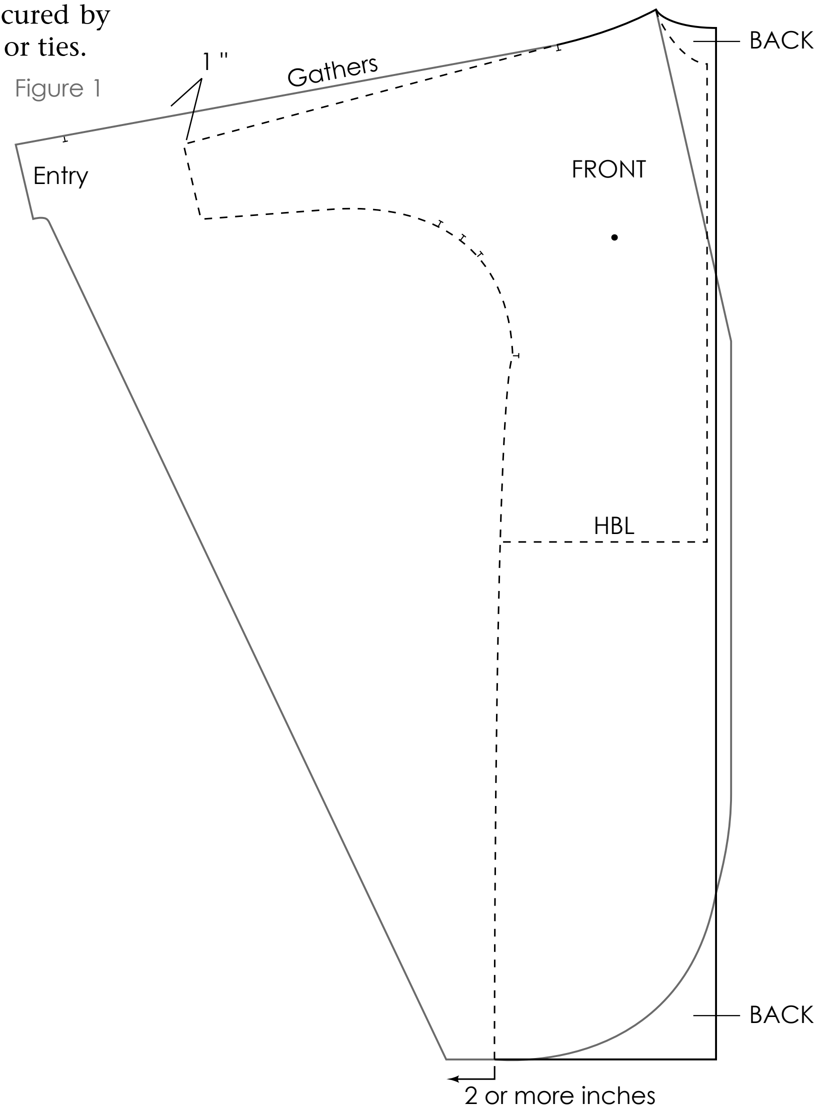
A caftan (also spelled *kaftan*) is a long, wide-sleeved robe, usually fastened by a belt or sash, worn in Eastern Mediterranean countries, but it is also a Western fashion garment. Use this foundation to create different designs.

Caftan Draft

Figure 1

- Trace front kimono. Add 2 to 5 inches to the hemline sweep. Draw a 1-inch line parallel with center front.
- Draw V-neckline and curved hemline.
- *Gathered overarm sleeve:* Extend kimono sleeve as desired. Draw line to shouldertip and hemline. Mark entry and allow 1 inch for a fold-back hem.
- Trace back kimono pattern. Lay front on top, matching shoulders (centers parallel). Draw sleeve and side seam. The closure is secured by several methods: buttons, snaps, loops, or ties.

Figure 1



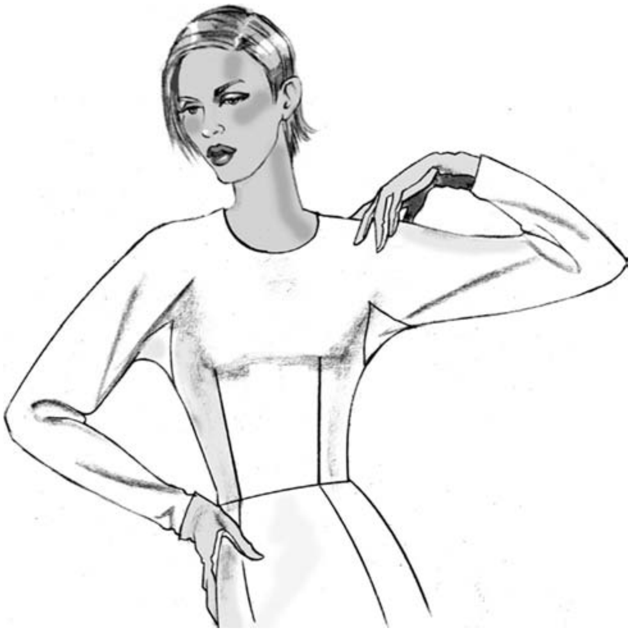
KIMONO WITH GUSSETS

A triangular-shaped wedge called a gusset replaces fullness under the arm of a regular kimono. The gusset allows for a closer fit without inhibiting articulation of the arm.

Two types of gussets are illustrated:

- Maximum lift at 180°.
- Minimum lift at 90°.

The draft accommodates 1/2-inch shoulder pads.



Preparing Sleeve and Bodice

Figure 1 Sleeve

- Trace basic sleeve in center of the paper.
- Extend grainline 1/4 inch. Square a guideline.
- Mark 1 1/2 inches down underseams. Label X.

Elbow dart: Reduce dart intake 1/4 inch and blend for ease. Trim 1/4 inch from back wrist to zero. Mark notches as shown.

Figure 1

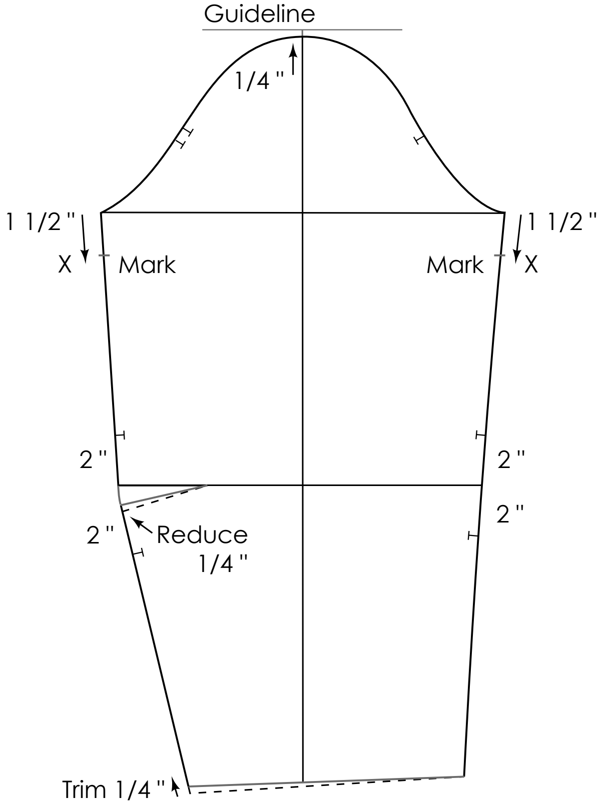
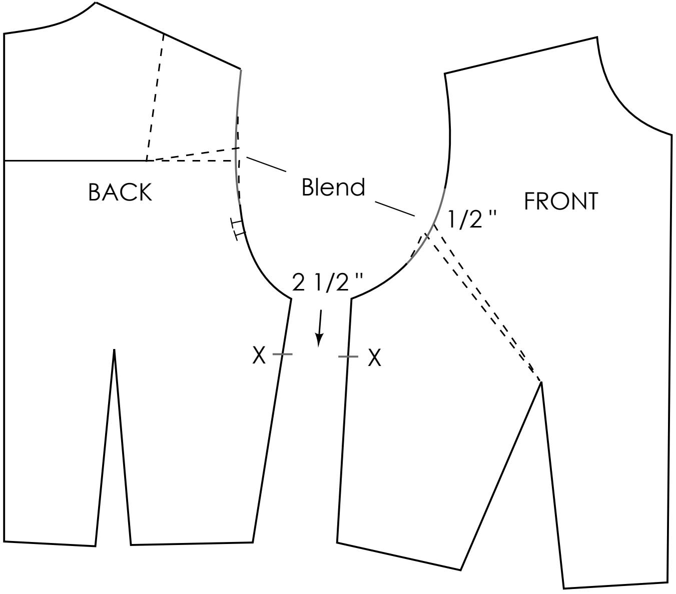


Figure 2 Front and Back Bodice

- Trace and transfer shoulder dart and 1/2 inch of the waist dart excess to mid-armholes and blend.
- Mark 2 1/2 inches down side seams. Label X.

Figure 2

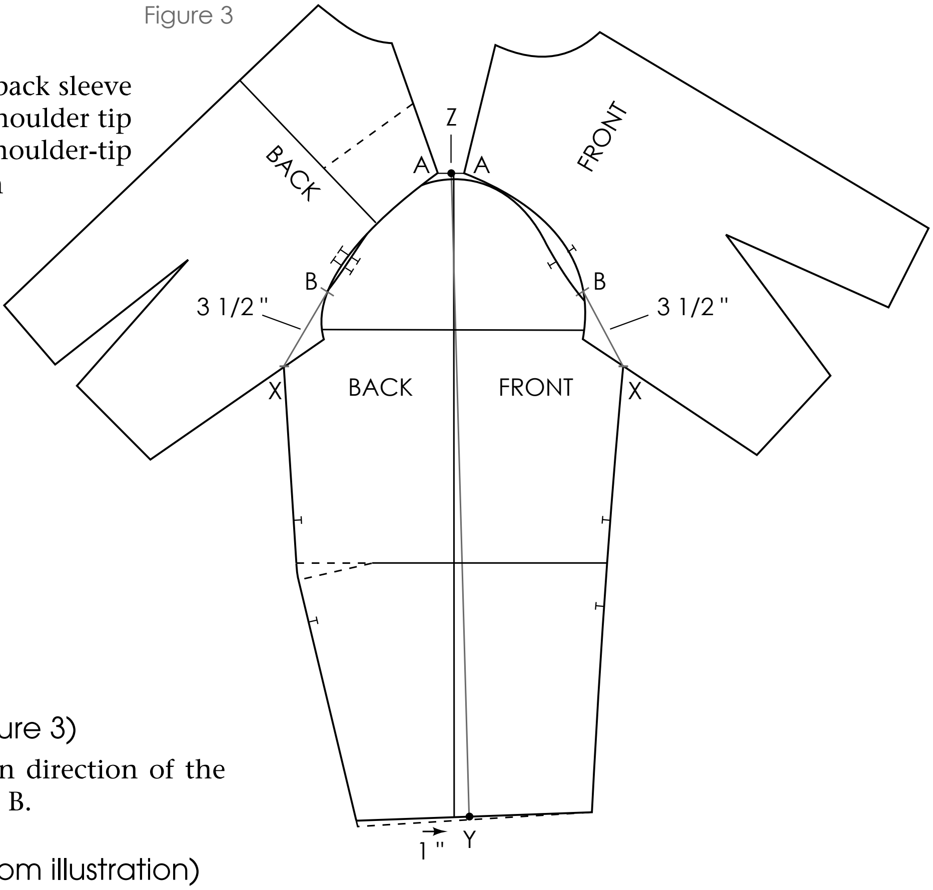


Bodice/Sleeve Combined

Figure 3

- Place the back bodice on the back sleeve with X-points touching and shoulder tip (A) touching the guideline. Shoulder-tip placements may vary from illustration.
- Repeat instruction on front draft.

Figure 3



Gusset Slit (continues with Figure 3)

Draw a 3 1/2-inch line from X in direction of the arm hole curve. Crossmark. Label B.

New Center Line (may vary from illustration)

- Mark center of the guideline between shoulder tips (A). Label Z.
- Mark 1 inch from the grainline at wrist level. Label Y.
- Draw a line from Y to Z.
- Cut sleeve apart on the Y–Z line (overarm seam).
- Trim excess at wrist level.

Figure 4

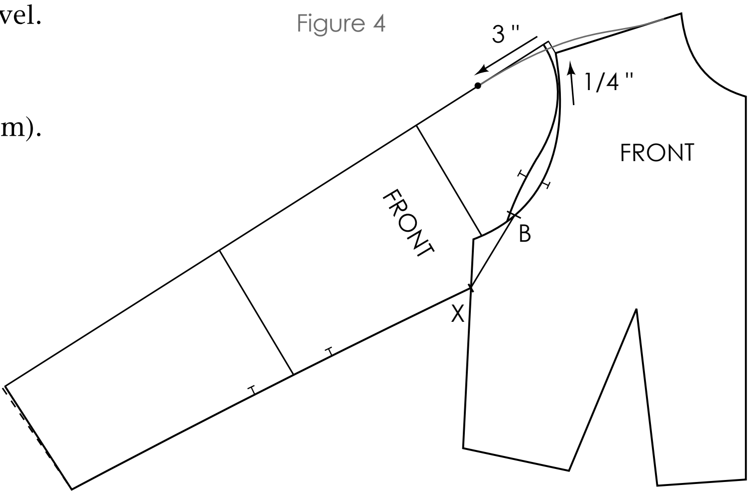
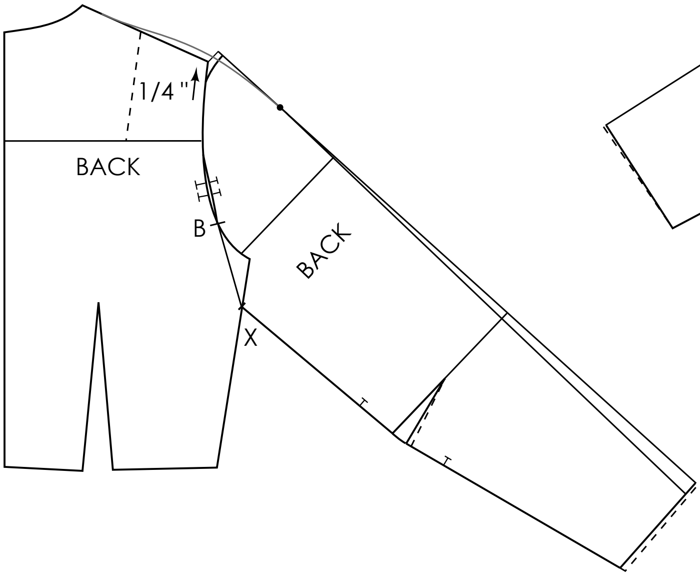


Figure 5



Overarm Seams (Front and Back)

Figures 4, 5

- Trace the separated patterns and *include the gusset slit.*
- Use the measurement given to draw and blend shoulderline to mid-shoulder and overarm seam.

Figure 6 Preparing Gusset Slit

Front

- Mark 1/2 inch out from each side of X (seam allowance).
- Draw a line from point B through mark to side seam of front bodice. Label C.
- Draw a line from point B through mark equal to B–C measurement (may not touch underseam). Label D.
- Draw a line from D to elbow level.

Back

- Repeat instructions for back gusset slit using B–C measurements. Blend.
- Add 1/2-inch seams, 1/4 inch at neck, and 1-inch hem.

Cut Gusset Slit

Figure 7

- Draw a slit 1/16-inch wide and end 1/16-inch from point B. Trim this amount (easier to trace).
- Fold pattern on slit line and crossbar at end of the slit (sets the length if the pattern rips.)

Figures 8a, b Gusset with Maximum Lift

- Fold paper. Square a 2-inch line from fold at center of paper. Label C and D.
- Draw lines from B to fold of paper equal to B–C measurement. Add 1/2-inch seam allowance, cut, and unfold (Figure 8a).

Two-piece gusset: Separate the gusset. Add seams and cut from the paper (Figure 8b).

Figure 6

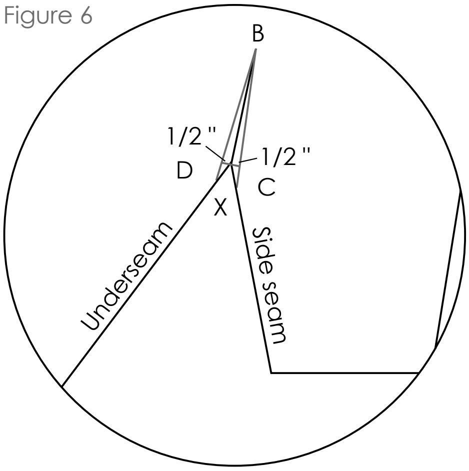


Figure 7

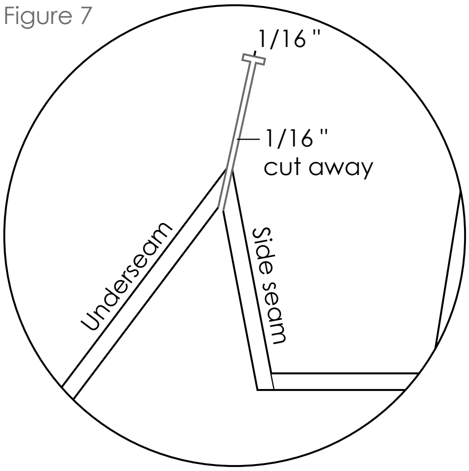


Figure 9 Gusset with Moderate Lift

- Draw 90° angle equal to B–C measurement.
- Draw a 2-inch diagonal line out from the corner.
- Draw a blending curve line. Add seams and cut from the paper.

Figure 8a

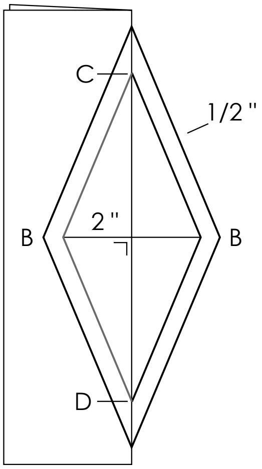


Figure 8b

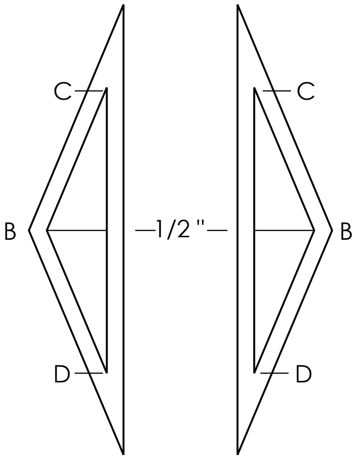
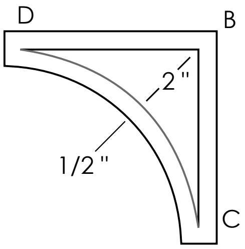


Figure 9



Sewing Instructions

Figure 10

- Cut patterns in the chosen fabric.
- Cut a 1-inch square of fusible interfacing.
- Center interfacing at point B on the wrong side of the fabric and fuse.
- Dot mark stitchline (D and C).
- Cut through the slit line.

The gusset may be pinned or basted before stitching.

Preparing Full and Half Gussets

Dot mark each corner of the gusset at stitchline (B, C, and D). Figure 11a is the sample.

Full Gusset

Figures 11a, b, c

- Stitch wrong sides of the underseams and side seams together, ending at C and D dot marks and back stitch. Press seams open (Figure 11b).

Figure 11a

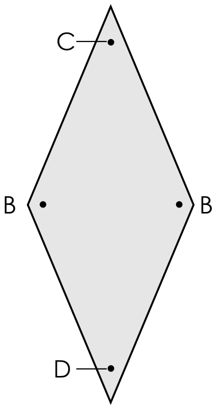
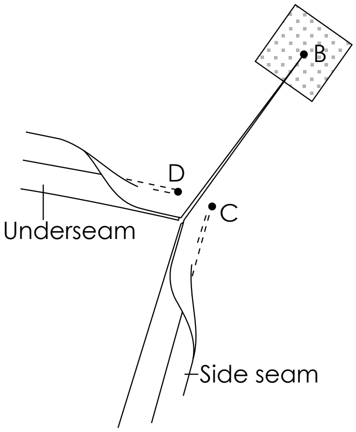


Figure 11b



- Spread slit. Stitch and back stitch, starting at dot mark C and gradually ending at B.
- Pivot needle at B and gradually stitch down to D mark and back stitch (Figure 11c). Repeat on other side of the gusset.
- Press gusset seams toward the garment. Sew all remaining seams.

Figure 11c

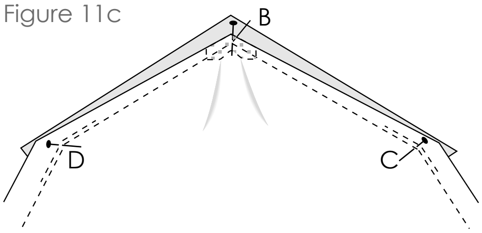
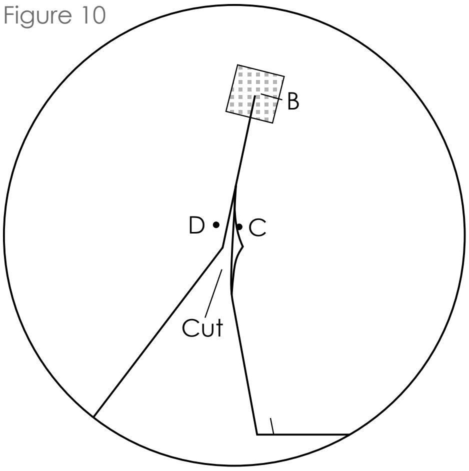


Figure 10



Two-Piece Gusset

Figures 12a, b

The gusset is stitched to the garment before the side seams and underseams are stitched.

- Stitch wrong sides of the gusset and garment, starting on front bodice and gradually finishing at B.
- Pivot at B and gradually stitch down to the other side of the gusset (Figure 12a).
- Repeat instruction on the back bodice.
- Sew the front and back garment from the underarm seams through the gusset seams, ending at the side seam of the waist.
- Press seams toward the garment (Figure 12b). Sew all remaining seams.

Figure 12a

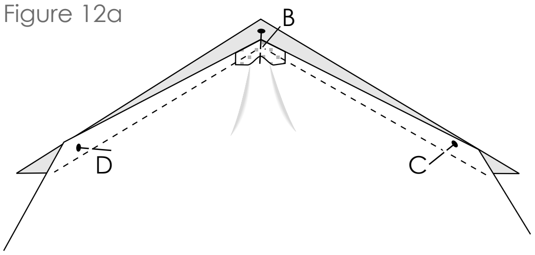
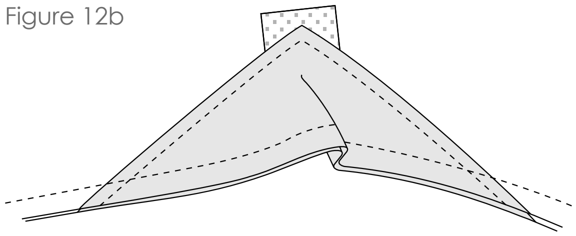
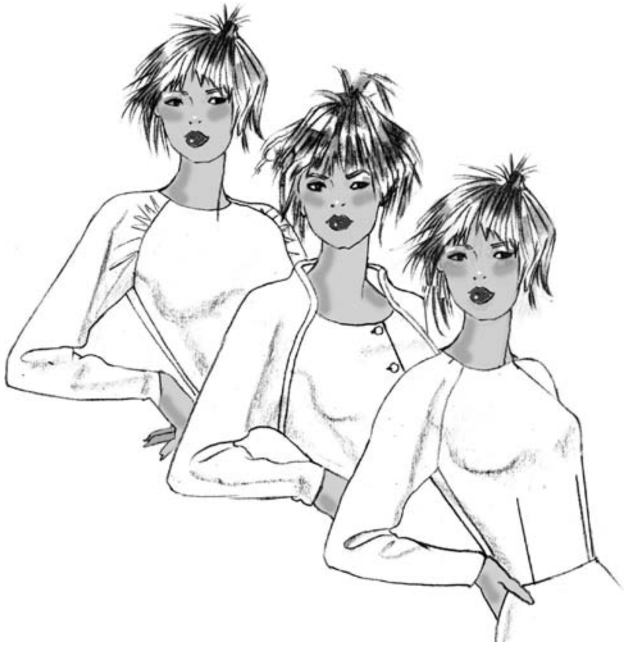


Figure 12b



RAGLAN SLEEVE

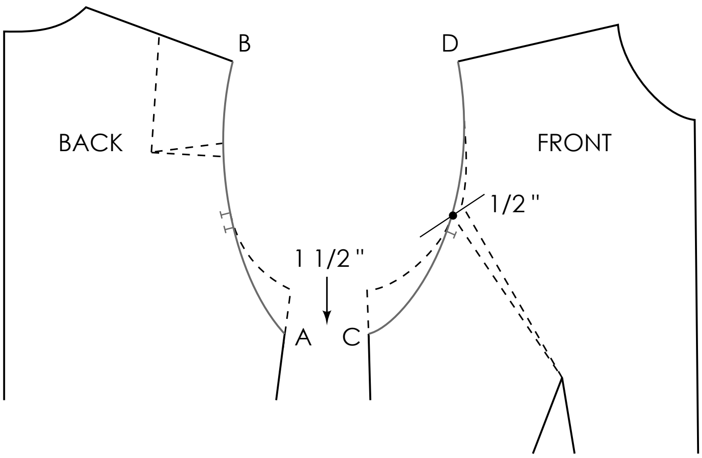


The raglan can be based on any pattern or foundation. Two raglans are illustrated, with and without elbow darts.

Figures 1a, b Modifying the Bodice

- Trace patterns, transferring shoulder back dart and 1/2 inch from front dart to mid-armholes.
- Lower the armholes 1 1/2 inches (more or less, according to design). With a French rule, draw the curve of the armholes, blending with notches.
- Label A, B, (back) C, D, (front).

Figure 1a Figure 1b



Figures 2a, b, Back Raglan Yoke

A to X = One-half of A to B. Less 1/2 inch. Mark. Draw a straight line from neck mark to X and a curve line, as illustrated.

Figure 2a

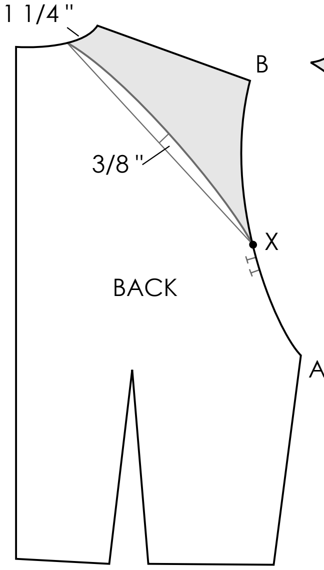
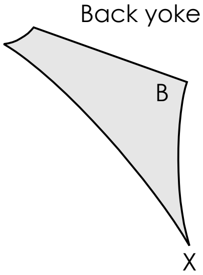


Figure 2b



Figures 3c, d Front Raglan Yoke

C to X = A to X. Mark and repeat instructions. Cut raglan yokes from bodice and save (Figures 2b and 3c). Lower sections are complete.

Figure 3c

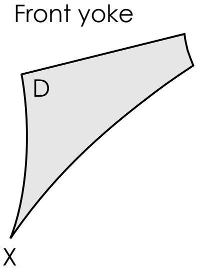
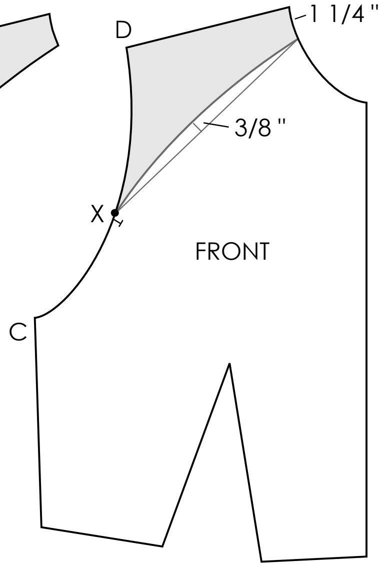


Figure 3d



Modifying the Sleeve Cap

Figure 4

- Trace the basic sleeve and extend cap grainline 1/4 inch. Square a guideline. Label hem G and H.
- Mark the elbow line out 1/4 inch at front sleeve and redraw the underseam.
- Mark 1 1/2 inches below biceps. Label E and F.
- Use a French rule to draw curve lines from E and F, blending with back and front notches.

  E to X = A to X of back armhole. Mark.

  F to X = C to X of front armhole. Mark.
- Reduce the dart intake by 1/4 inch (broken line). Mark 1/4 inch up from G and draw a line to zero at front wrist H (trim later). Mark ease control notches, as shown.

Figure 4

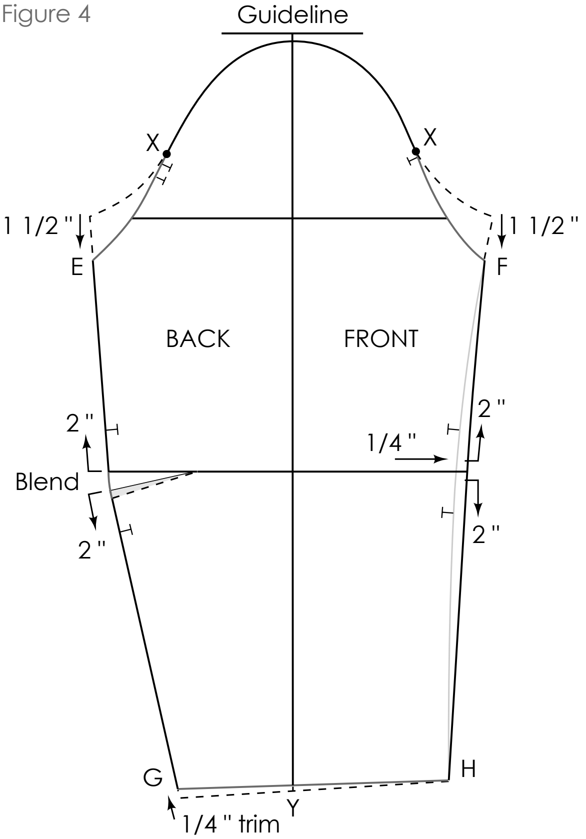
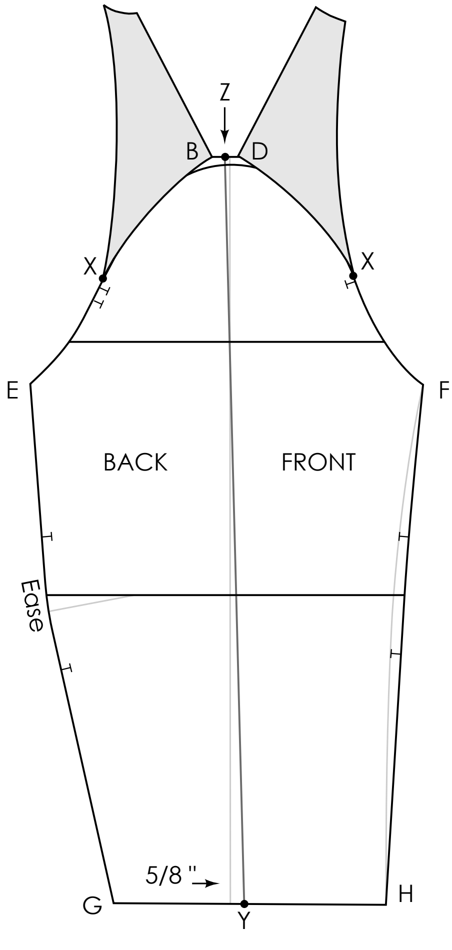


Figure 5a



Figures 5 a, b Placing Raglan Yoke

- Place raglan yokes on sleeve cap, matching X points first. Secure and pivot shoulder tips B and D, touching guideline. Trace and remove.
- Mark Z on the guideline centered between shoulder tips (may not align with grain).
- Mark Y 5/8 inch from center grainline at wrist and draw a line from Y to Z. (Fig. 5a)
- Draw curve slash lines from E and F to Z. (Fig. 5b)

Figure 5b

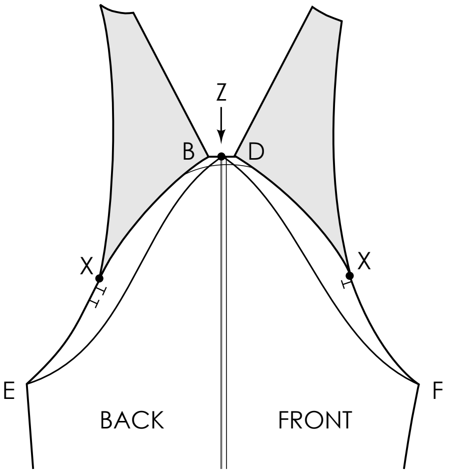
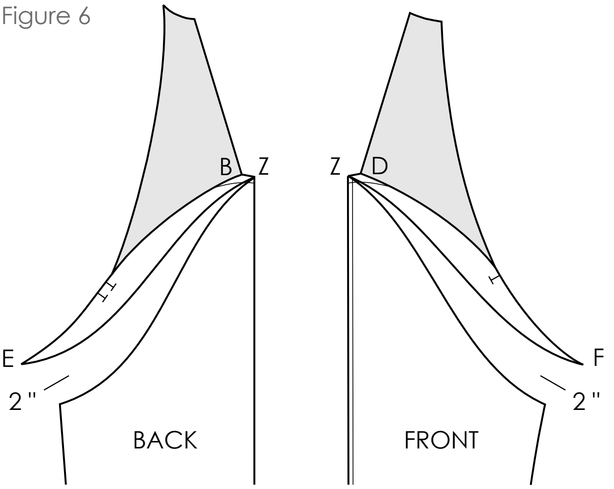


Figure 6 Adding Lift

- Separate the sleeve on Y–Z line. Slash from E and F to, but not past, Z (or use pivotal method).
- Place on the paper and spread 2 inches for lift. Secure and retrace back and front sleeve.

Figure 6


B
Z
Z
D
E
F
2"
2"
BACK
FRONT

Figures 7 a, b, c

- Draw a slightly curved line from E and F to elbow. Blend, if necessary.

A Basic Raglan with Elbow Ease

- Mark mid-shoulders 1/4 inch out from B and D and about 3 inches down the overarm seam.
- Draw a curve line, touching and blending with all points. Mark notches at shoulder tips. (Fig. 7a)

Raglan Casual Without Elbow Ease

- Add 1/2 inch parallel line with overarm seams blending to shoulder tip.
- Mark a point up from G that equals elbow to H and out 1/2 inch. From this point, draw a line to elbow level and across wrist level. (Figure 7b).

Figure 7a

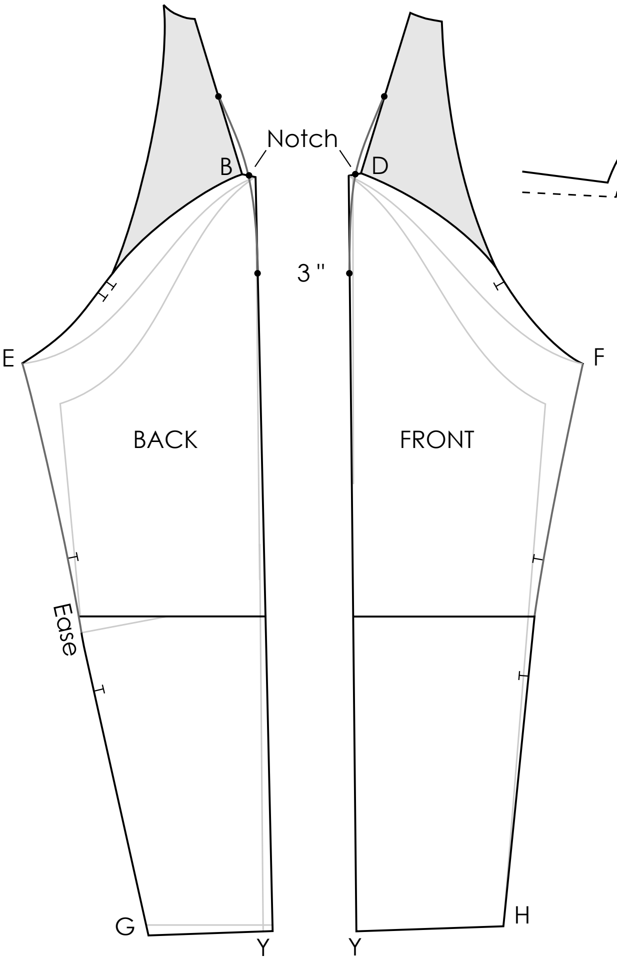

Notch
B
D
3"
E
F
BACK
FRONT
Ease
G
Y
Y
H

Figure 7c

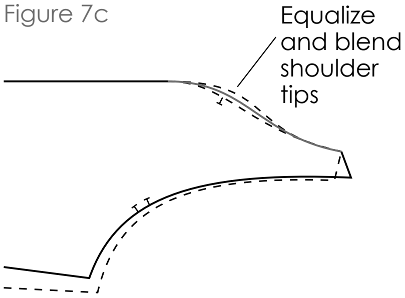
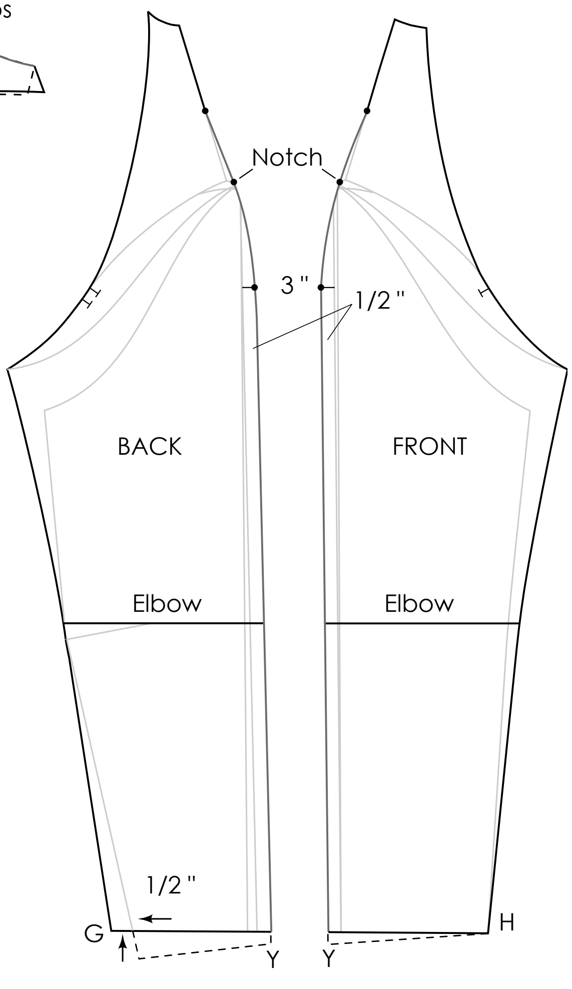

Equalize and blend shoulder tips

Figure 7b


Notch
3"
1/2"
BACK
FRONT
Elbow
Elbow
1/2"
G
Y
Y
H

Figures 8 a, b Completed Raglan Patterns

- Draw a grainline on the bodice patterns. Choose the desired grainline. Complete the pattern.

Figure 8a

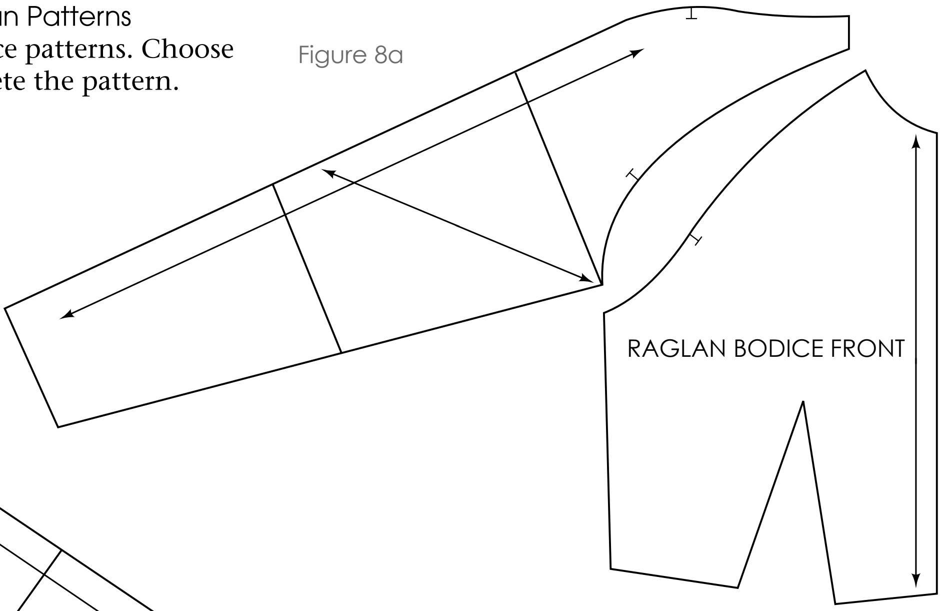
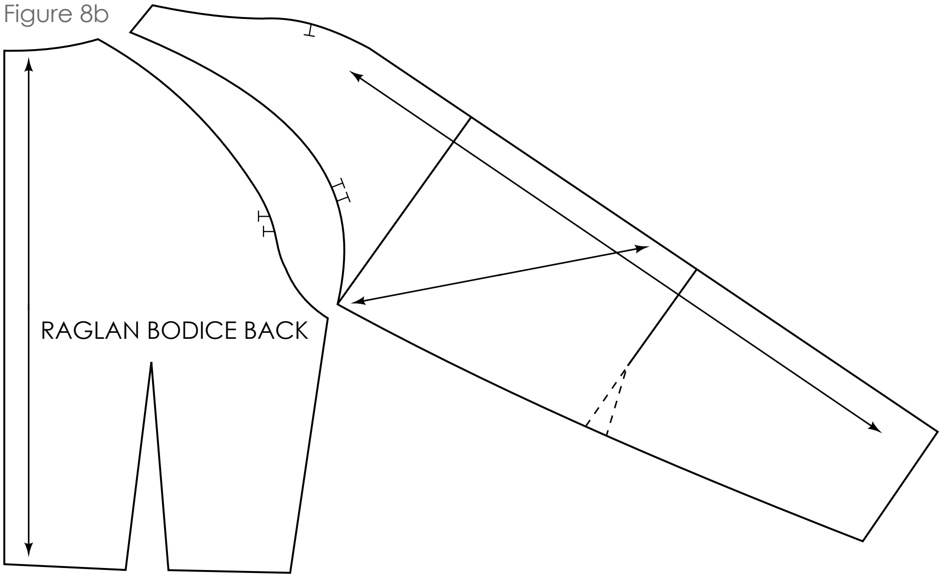

RAGLAN BODICE FRONT

Figure 8b

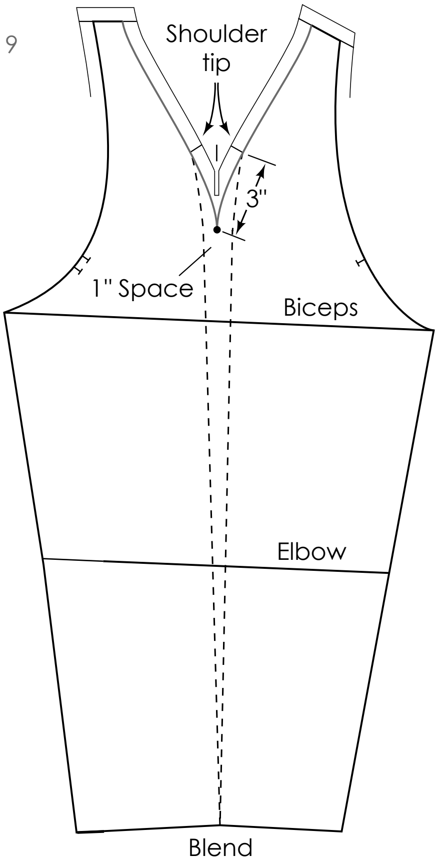

RAGLAN BODICE BACK

One-Piece Raglan

Figure 9

- With wrist levels together, spread biceps 1 inch.
- Trace front and back sleeves and all markings.
- Center and mark a point 3 inches down from the shoulder tips and draw a curved line to the shoulder tips.
- Blend the hemline.

Figure 9


Shoulder tip
3"
1" Space
Biceps
Elbow
Blend

RAGLAN DESIGN AND VARIATIONS

The raglan is a very versatile foundation for creating other related designs. Stylelines can be drawn in any direction from point X of the draft as illustrated in the following: armhole princess (as illustrated on this page); yoke (see next page); and drop shoulder (see two pages ahead). Design jackets and dresses using the principle of X.

Armhole Princess

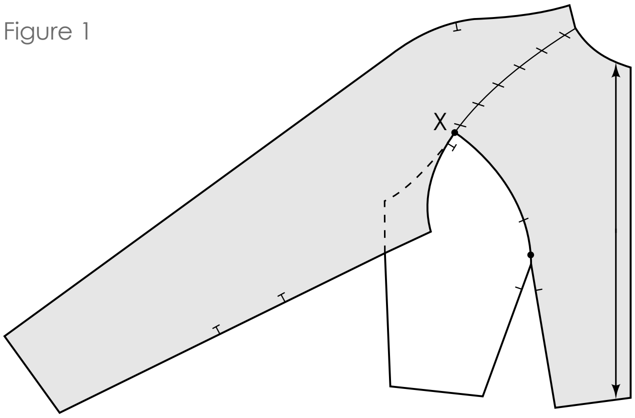
Pattern Plot and Manipulation

Figures 1, 2

Place the raglan pattern on the styleline of the traced bodice, with X-points touching.

Draw the styleline from X-point over the bust to the dart leg. The sleeve can be of any design or as illustrated. Trace the shaded areas first; then trace the side front and back bodice.

Figure 1



Design 1

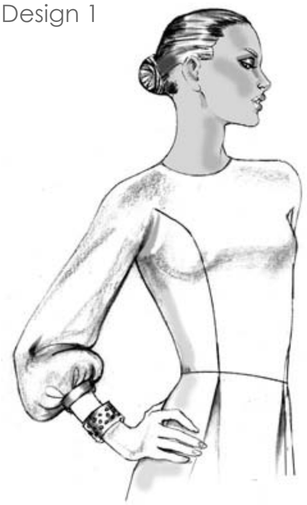
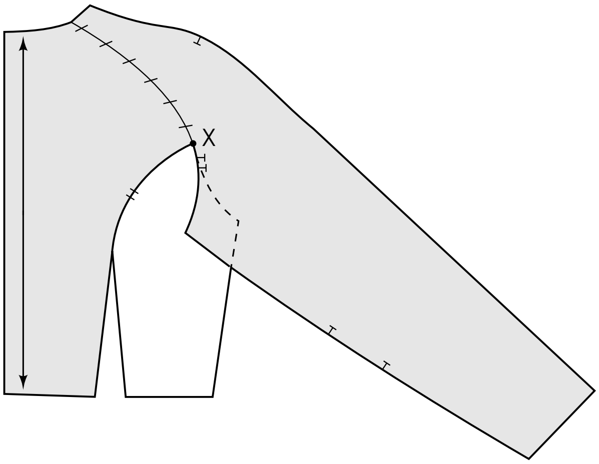


Figure 2



Figures 3, 4

Separated patterns are illustrated. Add sleeve fullness for gathers (or the design of choice).

Figure 3

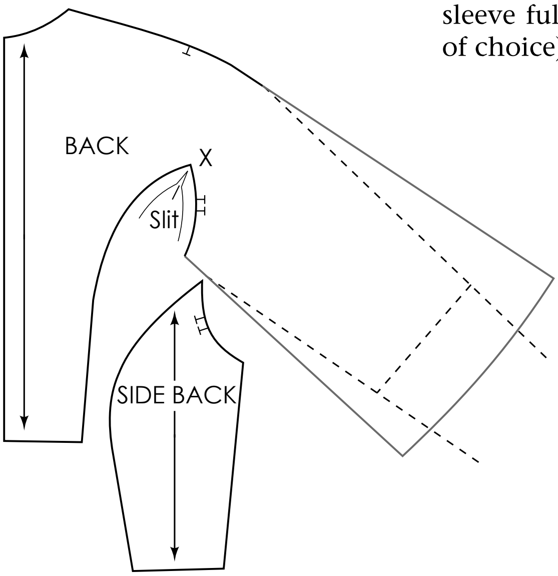
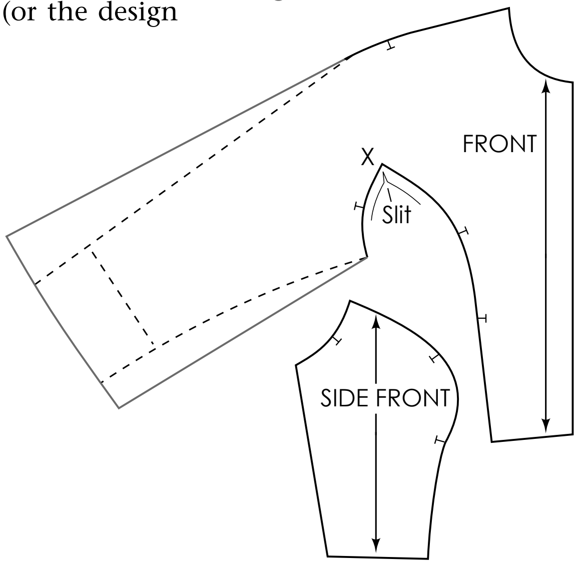


Figure 4



Yoke with Flare Sleeve

Pattern Plot and Manipulation

Figures 1, 2 Yoke Line

Place the raglan pattern on the styleline of the traced bodice, with X-points touching.

The yoke stylelines are squared from the center lines to the X-points. The sleeve is flared above, at, or below elbow level, as illustrated, or the design of choice. Trace shaded area first, then the front and back bodices.

Design 2

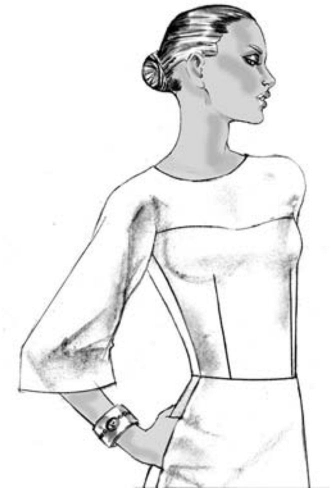


Figure 1

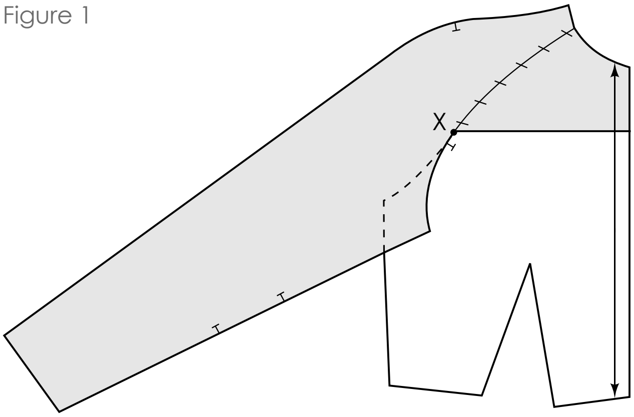
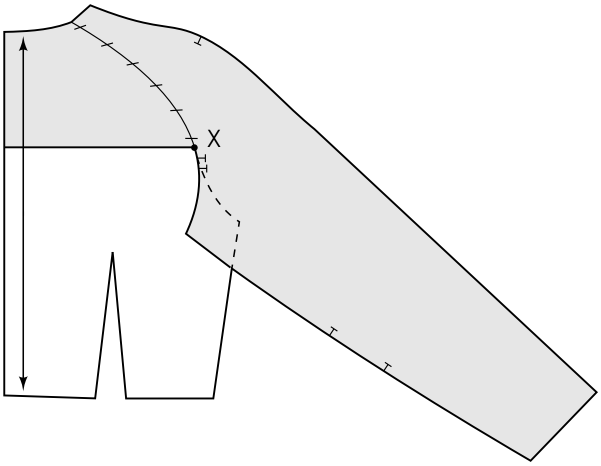


Figure 2



Figures 3, 4

Separated patterns are illustrated. Add sleeve flare.

Figure 3

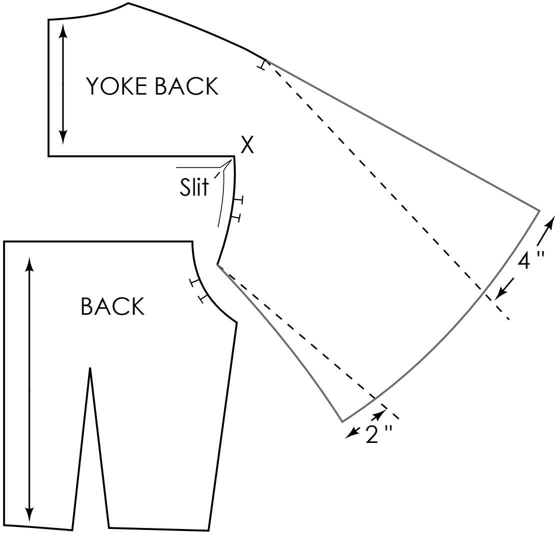
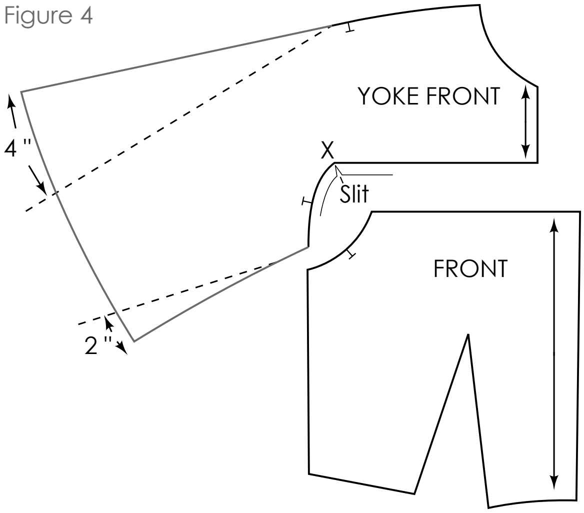
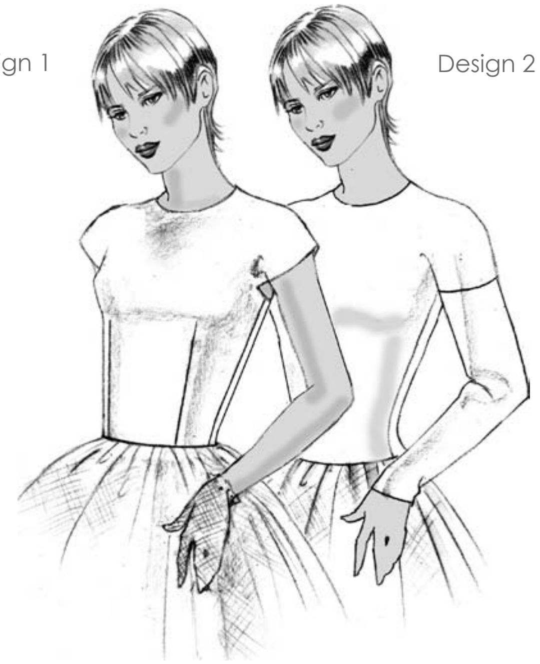


Figure 4



Raglan Drop Shoulder

Following this example is another version of the drop shoulder draft (see next page). Part of the sleeve cap completes the bodice. The remaining sleeve can be the base for many design variations.


Design 1
Design 2

Pattern Plot and Manipulation

Figures 1, 2

Place the raglan pattern on the styleline of the traced bodice, with X-points touching.

- Square a line from the overarm sleeves to the X-points. Verify the drop shoulder lengths and equalize if they do not match.
- Mark 1/2 inch down from the square line and draw curved lines to X-points.
- Trace the shaded areas of the patterns.

Figure 3 Sleeve

Trace the remaining sleeve on the drop shoulder capline.

Figure 1

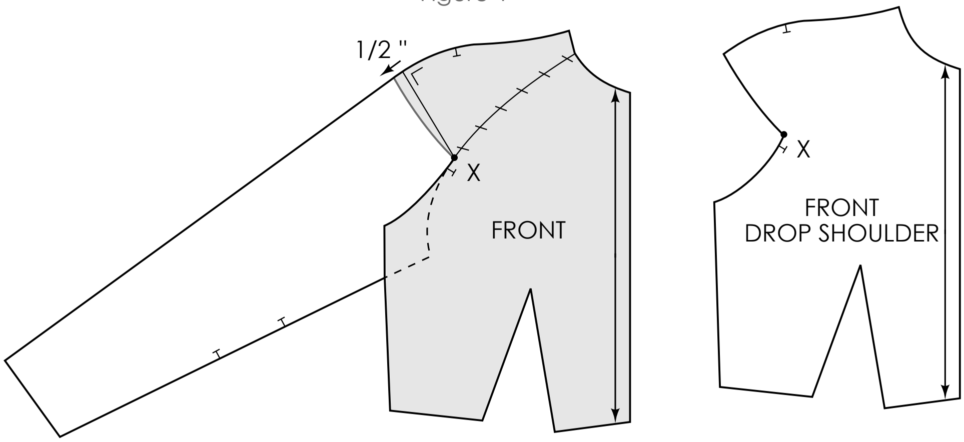

1/2 "
X
FRONT
X
FRONT
DROP SHOULDER

Figure 2

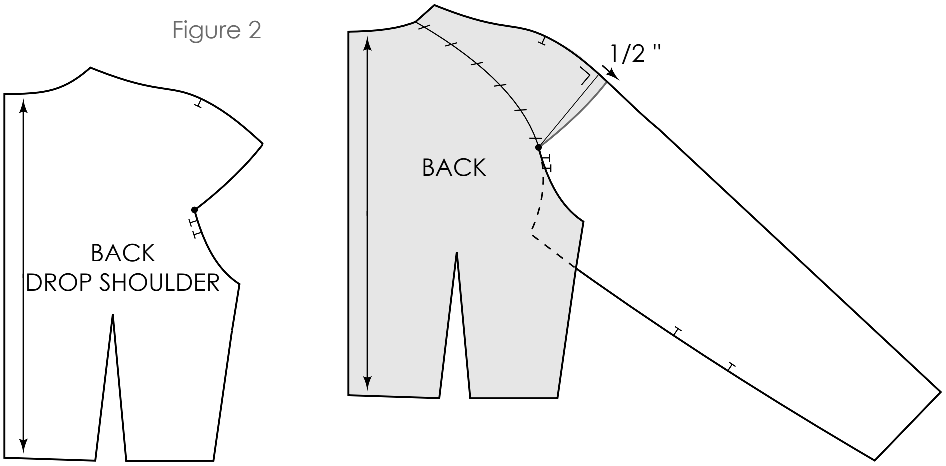
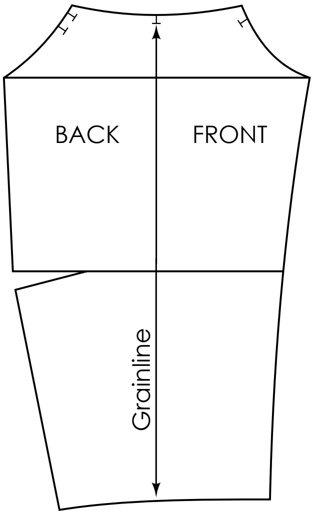
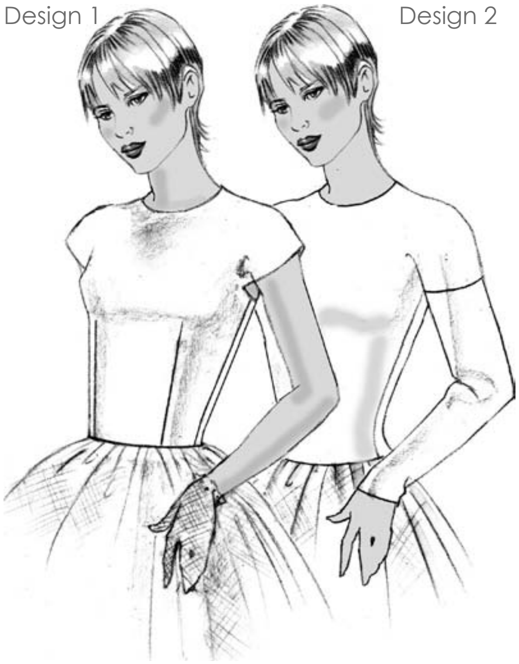

BACK
DROP SHOULDER
BACK
1/2 "

Figure 3


BACK
FRONT
Grainline

DROP SHOULDER

The drop shoulder pattern is developed by attaching a portion of the upper sleeve cap to the bodice. The dropped shoulder extends beyond the shoulder tip and covers part of the upper arm at varying lengths. It may be developed without the lower sleeve (Design 1) or with the lower sleeve (Design 2). Instructions apply to dresses, blouses, jackets, coats, activewear, and evening dresses. Design your own variations showing the creative flexibility of the drop shoulder pattern. See two pages ahead.



Design 1

Design 2

Drop Shoulder Draft

Pattern Plot and Manipulation

Figures 1a, b Sleeve Preparation

- Mark the center between the cap and biceps.
- Square a line across the sleeve cap from this mark.
- Mark 1/2 inch down from the center grainline, and draw a curved styleline. Label X.
- Measure armhole curves A to X and B to X. Record (Figure 1a).

Separate cap from lower sleeve (shaded area). Cut through grainline to separate the cap (Figure 1b).

Figure 1a

Figure 1b

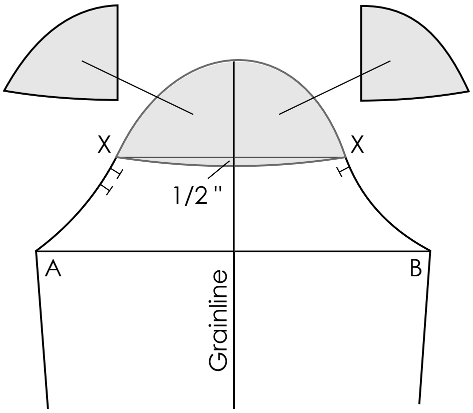


Figure 2

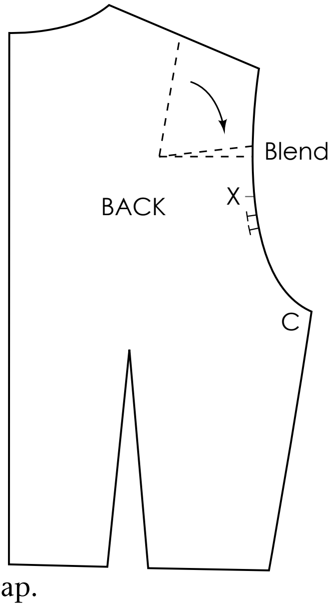
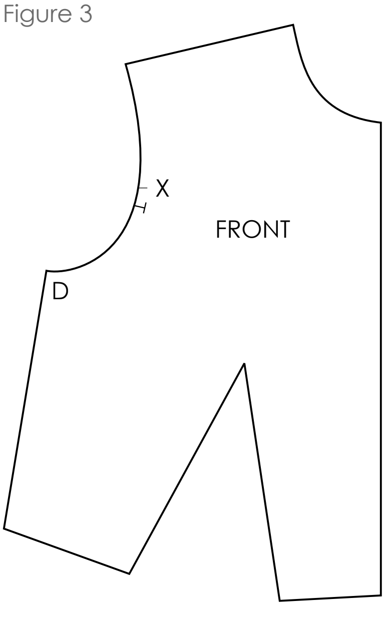


Figure 3



Figures 2, 3

- Trace patterns, allowing room for the sleeve cap.
- Trace back bodice, transferring shoulder dart to armhole. Trace front bodice.

  C to X = A to X

  D to X = B to X

Figures 4, 5 Sleeve Cap to Bodice

- Place cap sections on front and back bodice, with X-points touching and curve of the cap 1/4 inch away from the shoulder tips.
- Mark 1/4 inch up from the shoulder tips and draw, blending curve over the cap and ending at mid-shoulder, as shown. When trueing, blend the curve of the shoulders.

Figure 4

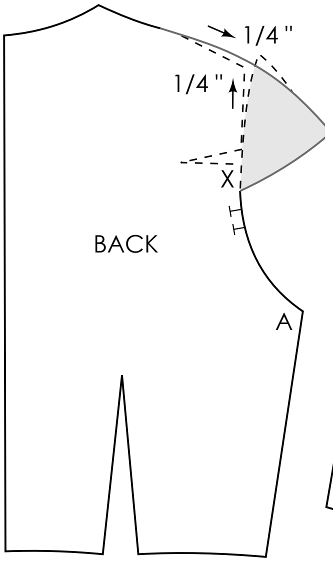

1/4 "
1/4 "
X
BACK
A

Figure 5

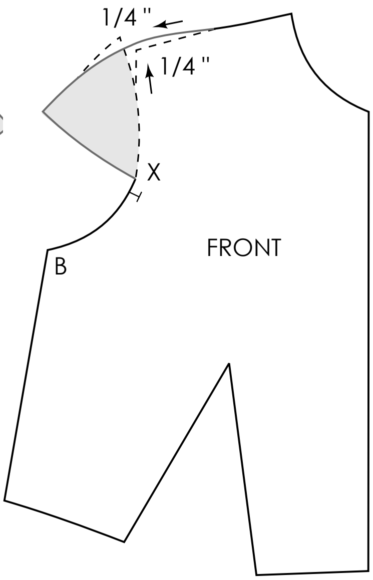
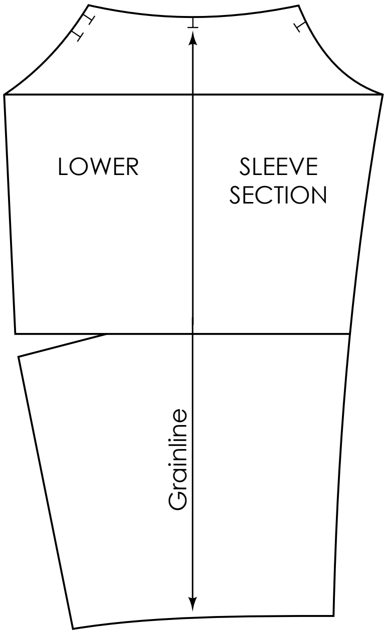

1/4 "
1/4 "
X
B
FRONT

Figure 6 Lower Sleeve Section

Figure 6


LOWER
SLEEVE
SECTION
Grainline

Casual Drop Shoulder

Figure 7

- Bodice—mark 1/2 inch to the cap and draw a blending line to the shoulder tip.

Figure 7

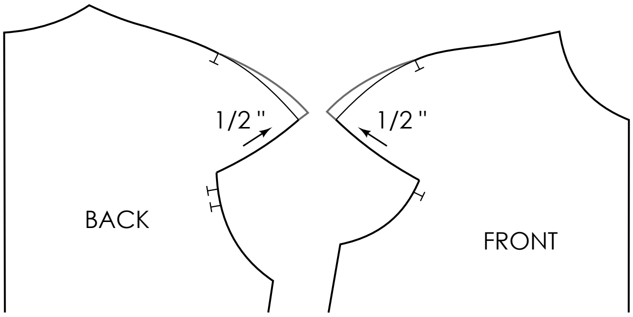
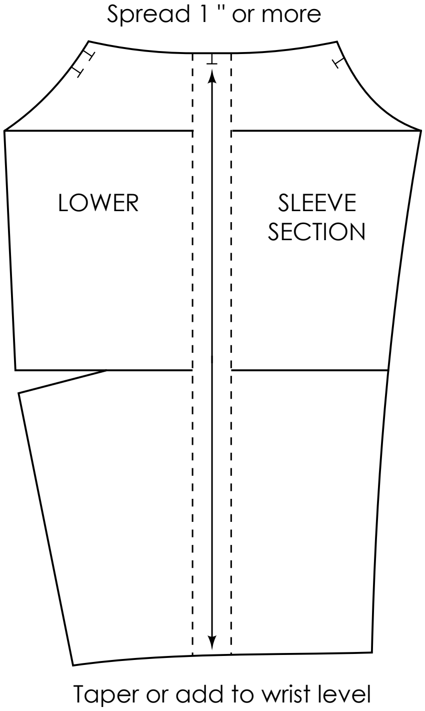

1/2 "
1/2 "
BACK
FRONT

Figure 8

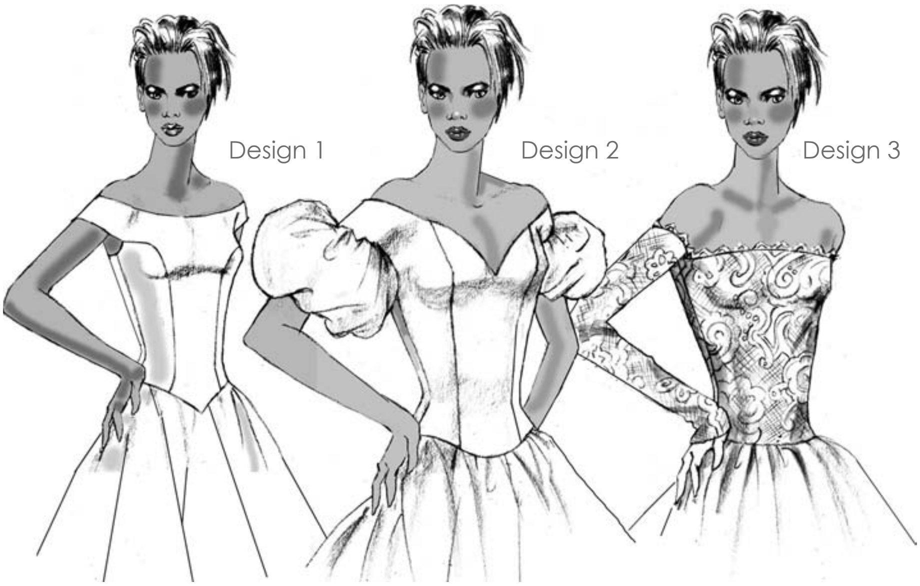
- Sleeve—split sleeve on grainline, spread 1 inch, and blend at top and bottom.
- The drop shoulder line and/or hemline can be spread for gathers or pleats.

Figure 8


Spread 1 " or more
LOWER
SLEEVE
SECTION
Taper or add to wrist level

Drop Shoulder Variations

Using the drop shoulder patterns, develop Designs 1, 2, and 3.



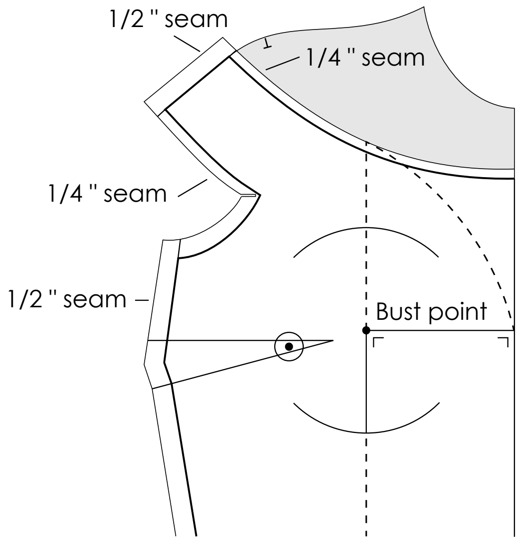
Design Analysis

Design 1—a scooped neckline and drop shoulder without a sleeve; see Figure 1.

Design 2—stylized neckline and princess line are illustrated by broken lines in Figure 1 as a guide. The puff sleeve is made from part of the lower sleeve (slashed and spread).

Design 3—The lower sleeve is attached to a strapless bustier shaped from the remaining pattern.

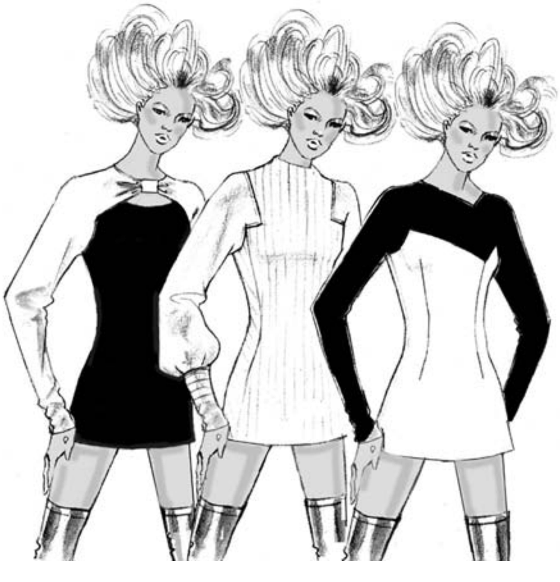
Figure 1



Pattern Plot and Manipulation

Figure 1

Illustrates an off-shoulder pattern modified for Designs 1 and 2. Create other designs based on this pattern.



Designs Based on Raglan Foundation

The illustrated designs based on the raglan foundation are generated by changing the direction of the styleline from X-points. Develop patterns for practice or design other variations.

EXAGGERATED ARMHOLES

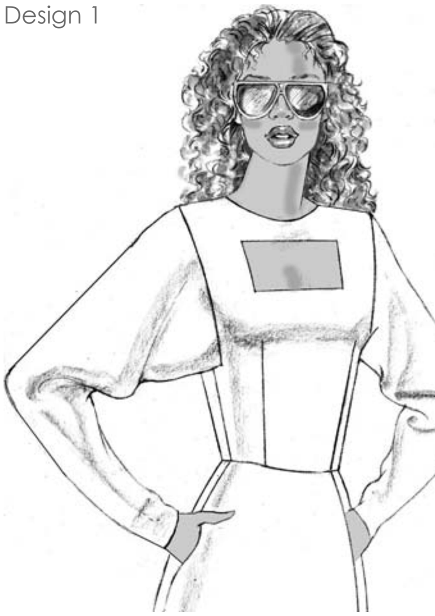
Armholes can be exaggerated by cutting deeply and widely into the garment. The pattern is developed by attaching to the sleeve a portion cut from the bodice. Exaggerated armholes can be developed using the top of any pattern. The instructions should be used as a guide for similar designs.

Deep-Cut Square Armhole

Design Analysis—Design 1

Sleeve is set deeply into a square armhole of the bodice and tapers to wrist level.

Design 1



Exaggerated Armhole Draft

Figures 1, 2 Bodice Modification

- Trace the front and back bodice. Transfer the back shoulder dart to the mid-armhole.
- Mark A 1/2 inch out from front and back shoulder tips.
- Mark B 3 inches down on side seams of the front and back armholes.
- Mark C 2 inches squared from B.
- Connect C with A using a slightly curved line. (Broken lines of front and back bodice indicate original armhole.) Mark notches.
- Cut from paper. Trim B–C sections to complete the bodice patterns.

Figure 1

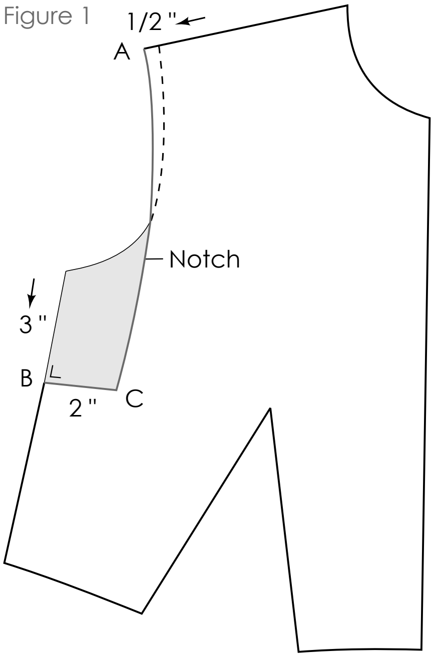


Figure 2

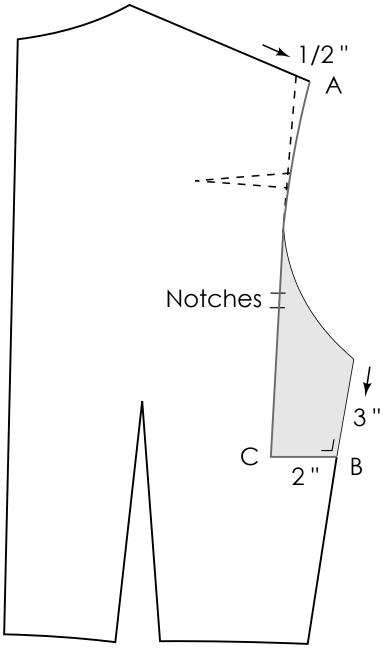


Figure 3

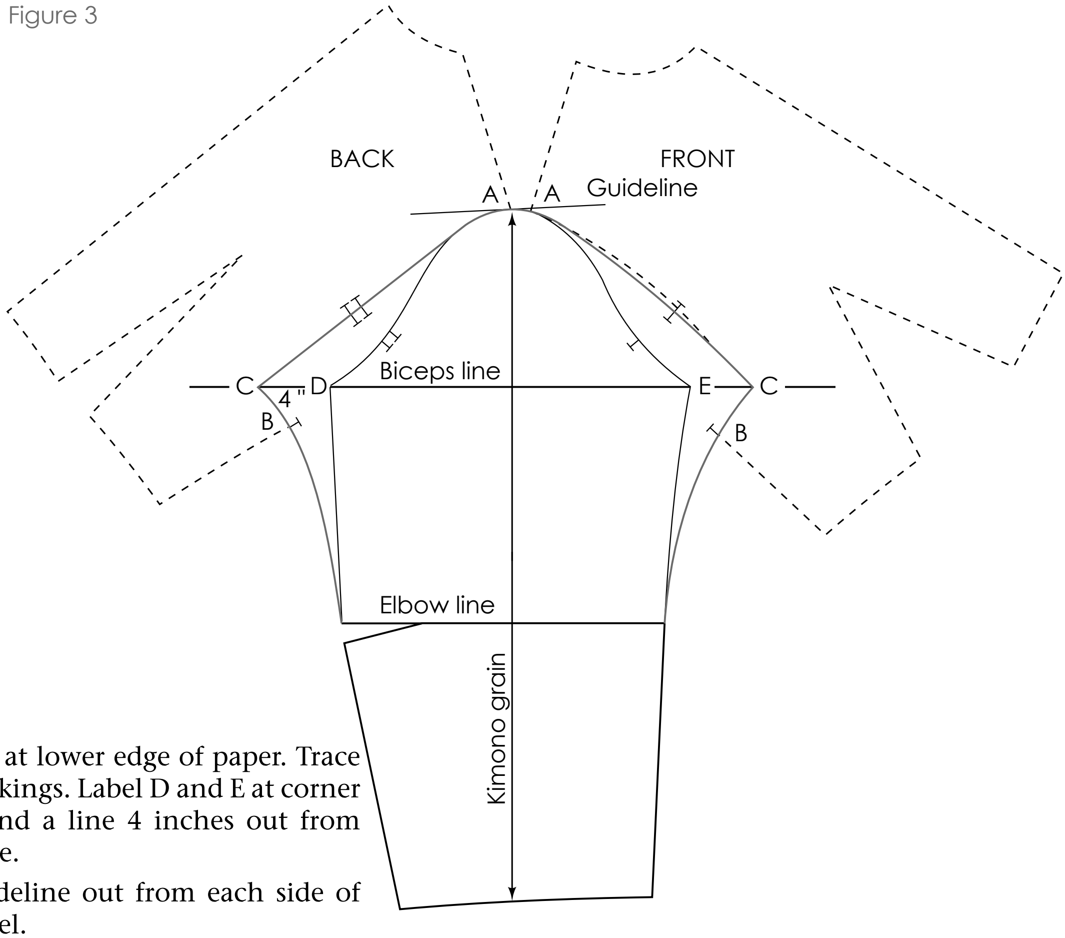


Figure 3 Sleeve

- Center basic sleeve at lower edge of paper. Trace and include all markings. Label D and E at corner of biceps and extend a line 4 inches out from each end for a guide.
- Square a short guideline out from each side of the grain at cap level.
- Place back and front patterns on the draft, with C on biceps guideline and A touching on cap guideline.
- Draw a bodice armhole, including notches, and remove pattern. (Broken lines indicate untraced pattern.) Crossmark points B on the sleeve. Remove the pattern.
- Redraw the front armhole curve, flattening slightly.
- Draw curved lines from B to elbow level on front and back.
- The space on the front cap between the A-points is cap ease. If this measures more than 1/2 inch, slash the grainline at cap to, not through, wrist and overlap to remove unneeded excess. Tape pattern (not illustrated).

Figure 4 Adding Lift

- Draw a curved slash line from B to the mid-point of cap line.
- Divide the area into three sections and draw the slash line.
- Cut the sleeve from paper.
- Starting at points B, cut slash lines to, not through, cap line.

Figure 4

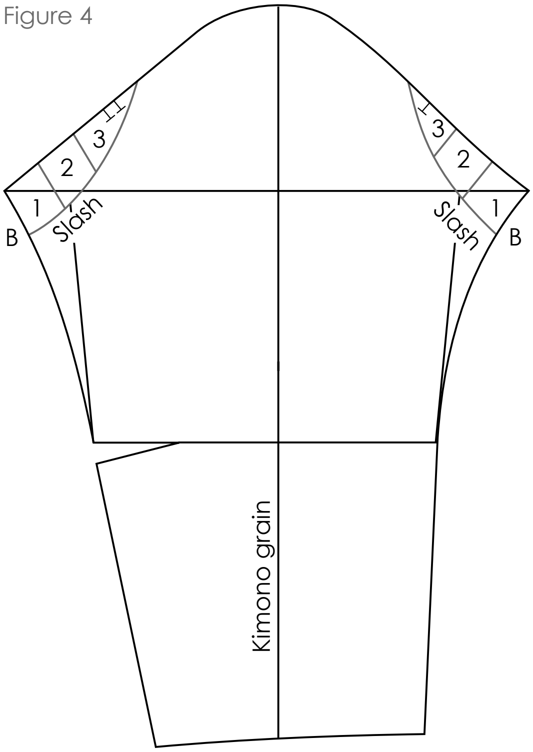
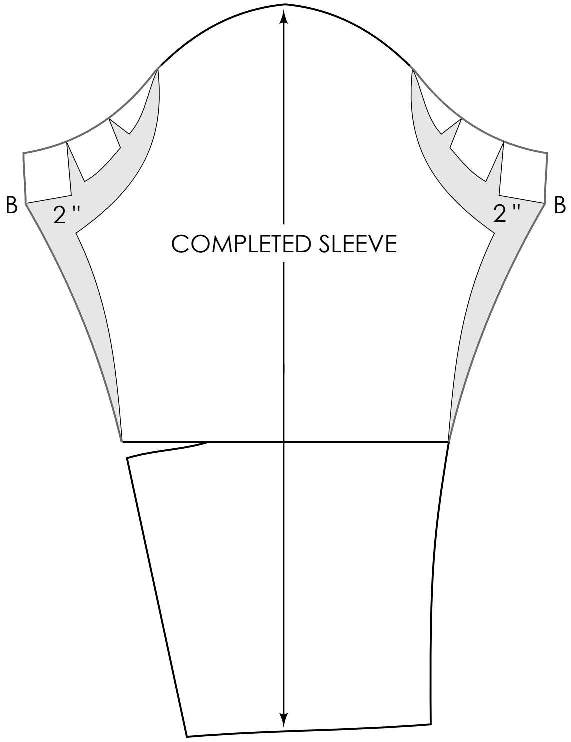


Figure 5 Sleeve Lift

- Place the sleeve on the paper.
- Raise points B 2 inches or less, spreading sections evenly.
- Trace the pattern.
- Draw curved lines from points B past elbow level and trim dart excess from wrist, as shown.
- Draw a grainline and complete for a test fit.

Figure 5



SELF-EVALUATION TEST

Circle T for "true" and F for "false." To check your answers, see end of the chapter.

1. There are six distinct bodice/sleeve combinations. T F
2. A deep-cut armhole and kimono have the same silhouette. T F
3. A raglan sleeve combines part of an armhole and shoulder. T F
4. A drop shoulder combines all of the bodice and sleeve. T F
5. Excess in the front armhole restricts forward motion. T F
6. Lift allows the arm to be raised upward. T F
7. A high-fitted kimono requires a gusset for arm movement. T F
8. A raglan X-point allows for many design possibilities. T F
9. The Western kimono squares out from the shoulder neck location. T F
10. Gussets allow for a closer fit under the arm. T F
11. A slit under a high armhole of a kimono is a draft mistake. T F
12. A raglan princess styleline is possible because of X-point. T F
13. The dolman originally was a kimono. T F
14. Shoulder pads require additions at the shoulder tip. T F
15. The caftan is based on the bodice front and back patterns. T F

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

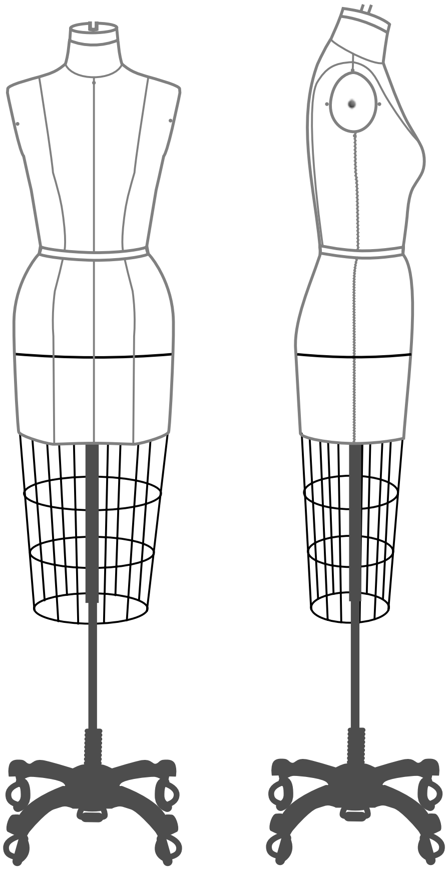
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

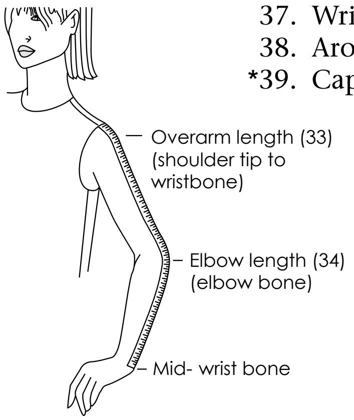
Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

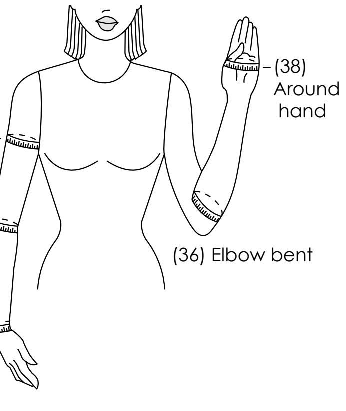
Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____

Length


Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone

Circumference



*Measuring the Arm

Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

ANSWERS TO SELF-EVALUATION TESTS

1. F; **2.** F; **3.** T; **4.** F; **5.** F; **6.** T; **7.** T;
8. T; **9.** F; **10.** T; **11.** F; **12.** T; **13.** F; **14.** F; **15.** T

This page intentionally left blank

Buttons, Buttonholes, and Facings

BUTTONS AND BUTTONHOLES
- Basic Types of Buttons
- Types of Buttonholes
- Button/Buttonhole Extension
- Button and Buttonhole Placement Guide

FACINGS
- Stitched Facings
- Fold-Back Facings
- Facing Types
- Facings for Cut-Out Necklines and Armholes

SELF-EVALUATION TEST

From Chapter 16 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

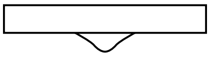
BUTTONS AND BUTTONHOLES

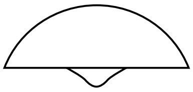
Buttons and buttonholes are both functional and decorative, but their primary purpose is to hold two sides of a garment together by having a button on one side of the garment slipped through a corresponding opening or loop on the other side. (Other types of closures are Velcro, snaps, hooks and eyes, and grippers.)

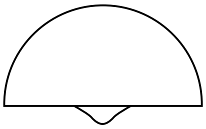
Buttons range in size, and they come detailed or flat in a wide range of geometric shapes, such as circle, square, rectangle, quarter-ball, half-ball, and full-ball (see illustration). They are commonly designated by "line" (ligne), inches or centimeters representing the diameter of the button.

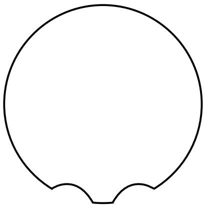
Buttons can be made of plastic, metal, or natural substances (wood, bone, mother-of-pearl), or covered in fabric or leather. They can be plain or decorative—jeweled, corded, carved, or saddle stitched. There are buttons for every type of garment, from sportswear to formal wear, making the button an important fashion statement.

Buttonholes are openings or loops wide enough to accommodate the size of the button, placed on an overlapping section of the garment or as a loop where the center lines meet. Women's-wear garments button right over left, through vertical, horizontal, or angled slits.

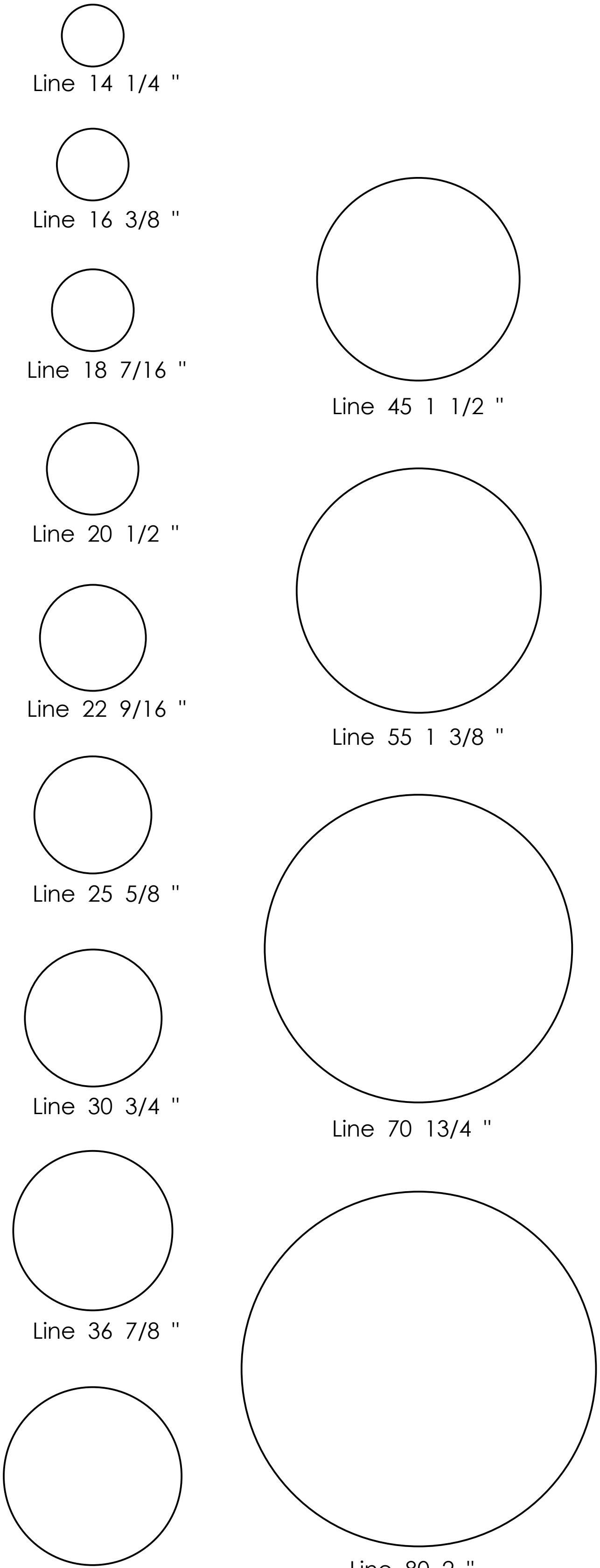

Flat


Quarter ball


Half- ball


Full- ball

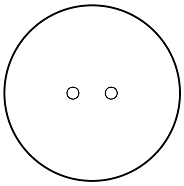
BUTTON SIZES



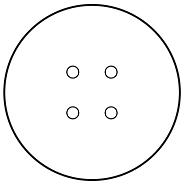
Basic Types of Buttons

Sew-Through

Sew-through buttons have two or four holes for attachment.



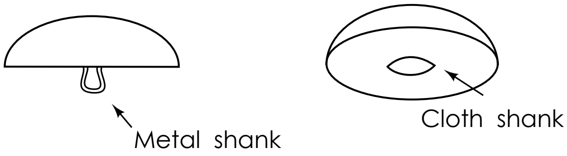
Two- hole button



Four- hole button

Shank Buttons

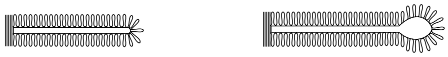
Shank buttons have a solid top and various types of shank (wire, fabric, loop, metal, or plastic) attached to the underside. The shank raises the button away from the fabric surface, allowing room for layers of fabric to fit smoothly under the button when closed.



Types of Buttonholes

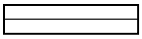
Machine-Stitched

Buttonholes can be stitched as straight or keyhole openings.



Bound Buttonholes

Folded fabric covers the raw edge opening in the garment. This type of buttonhole can be made by a seamstress or sent to a trim house for stitching.



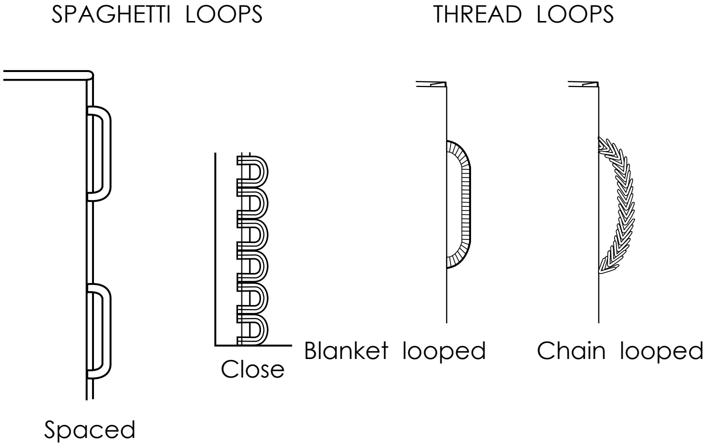
Bound

Loops

Loops are narrow strips of turned bias with or without a filler. For mass-produced garments, loops are generally made by a trim house. Loops are stitched at center line. The joined side can be developed with or without an extension.

Slits

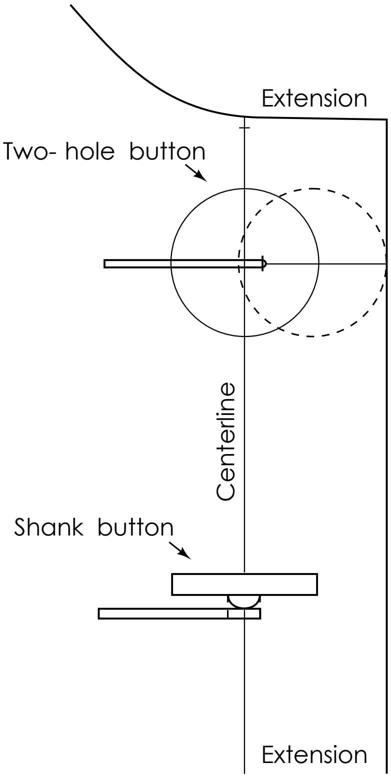
Slits can be cut in leather, plastic, or fabric that will not ravel (not illustrated).



Button/Buttonhole Extension

Overlap

Button closures require an overlap extending beyond the center line. The extension should be equal to the diameter of the button (or one-half the diameter on inexpensive garments). Asymmetric garments have extensions that are parallel with the asymmetric line. The center of the button is stitched on the center line of the garment. The buttonhole starts at the center line and finishes on the body of the garment. More information follows.



Buttonhole Length

The length of a buttonhole is determined by the diameter of a flat button plus 1/8 inch.

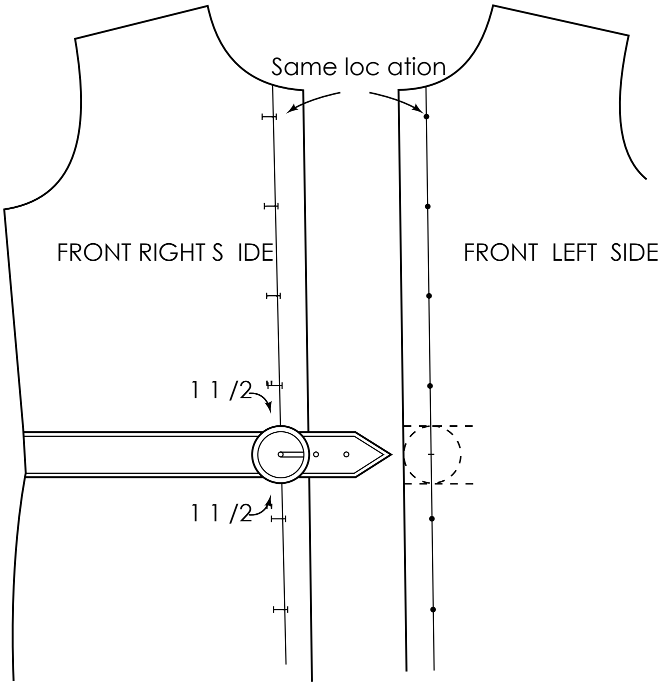
Buttonhole Placement

The buttonhole placement generally starts 1/8 inch out from the center front (on the extension). However, consideration must be given to the distance between the holes of the button or to the width of the button shank. Mark the buttonhole placement out from the center line one-half the distance between the holes of the button and one-half the width of the shank. Otherwise, the buttonhole will not be centered with the button. Make a copy from front to shoulder/neck for the person who makes the buttonholes.

Button and Buttonhole Placement Guide

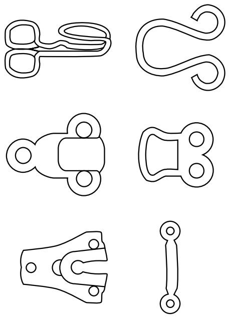
Necklines

Mark the buttonhole down from the neckline at a distance equal to one-half the diameter of the button, plus 1/4 inch.



Belted Garment

Mark the position so that buttonhole is at least 1 1/2 inches up and down from belt or buckle width. The waist can be secured with Velcro or hook and eye, if needed (see examples). Apply the same rule for the waistband on the buttonhole side.



Unbelted Garment

Mark buttonhole placement at the waistline to secure waist.

Buttonhole Spacing

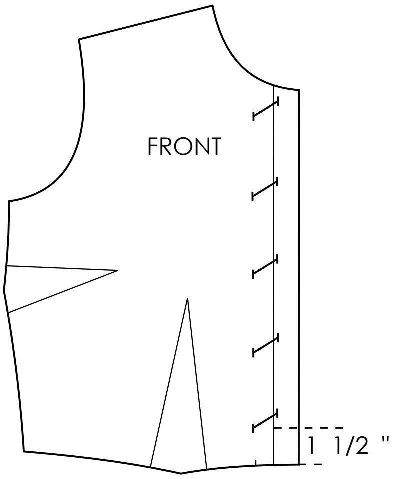
Mark the first and last buttonhole. Divide the remaining space among the remaining buttonholes needed. When spacing buttonholes, consider placing buttonhole as near to the bust level as possible to avoid gapping. This may require closer or wider placement than desired.

Button Placement

Mark button placements on the left side corresponding to buttonholes on the right. Center the space between holes of the button or center of the shank; place on the center line of the garment.

Diagonal Buttonholes

The rules stated previously apply. Make a copy of the button and buttonhole placement as a guide for the buttonhole maker.



Vertical Buttonholes

Figure 1

These instructions apply to inset bands or the use of tiny buttons. Button placement is marked at the top of the buttonhole at the neck and at the lower end of the last buttonhole, with the remaining buttons centered. This button placement stabilizes the garment.

Waistbands and Cuffs

Figure 2a, b

Instructions for button and buttonholes apply.

Figure 2a

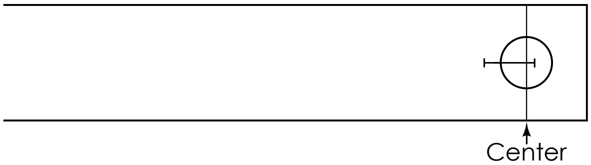
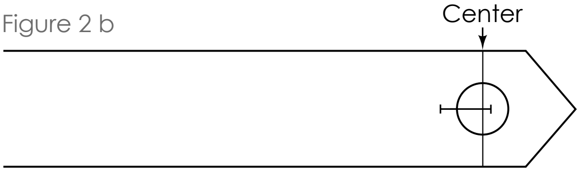


Figure 2 b



Lapels

Figure 3

Mark button and buttonhole at a point where the lapel folds over from the extension (breakpoint). Place remaining buttons and buttonholes using previous information. Use the information provided for marking button/buttonholed sleeve cuffs.

Figure 1

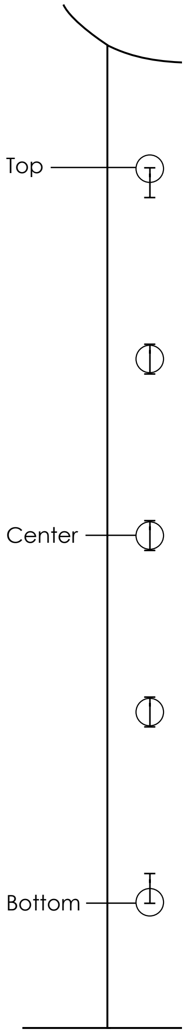
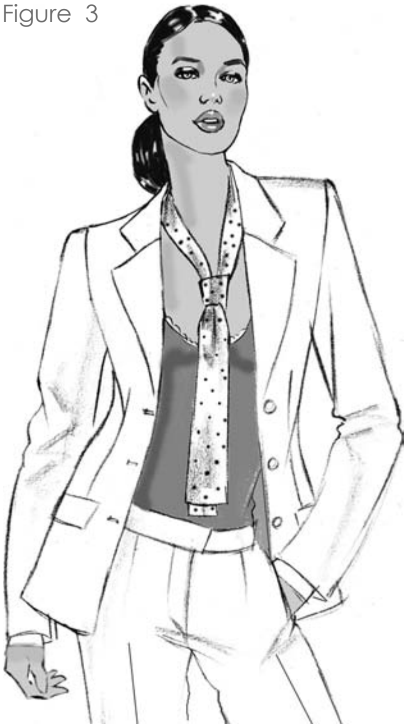


Figure 3



How to Determine Accurate Buttonhole Length

It may be difficult to determine the correct buttonhole length for shank buttons; quarter-ball, half-ball, and full-ball buttons; and those buttons that are carved and decorated.

Solution: Before placing the buttonhole on the garment, experiment on a piece of scrap fabric. Measure the diameter of the button from side to side. Mark the length of the diameter on the scrap fabric, slit the fabric, and push the button through. If too tight, slash more; if too loose, slit another sample. When you have the correct length, set the buttonhole machine, or if self-made, mark the correct length. Remember that women's-wear garments are buttoned right over left, and men's-wear garments are buttoned left over right.

Collecting button sizes: Find buttons to fit the example sizes, label them, and file for future reference.

FACINGS

Stitched Facings

A stitched facing's primary purpose is to conceal raw edges of seams for designs with cutout necklines, cutout armholes, sleeveless garments, curved hemlines, and any styleline where raw edges must be covered.

Fold-Back Facings

Fold-back facings are not stitched to the garment but are part of the main pattern. Generally, the fold-back facings follow straight lines of the garment—hemlines of skirts, sleeves, jackets, pants, and cowls, to name a few.

The following instructions apply only to neckline, shoulder, and armhole facings.

Facings are planned as part of the plotting. They are traced from the pattern before or after the design pattern has been developed. Facings for deeply cut-out necklines or armholes may be modified, with the cut edge of the neck and armhole of the garment eased into the facing to offset stretch or to cause a closer fit. Both methods are illustrated.

Facing Types

Facings vary in width and shape but generally are from 1 1/2 to 2 inches. The back facing should be longer than the depth of the front neckline for hanger appeal.

Separate facing. Individual facings for the neckline and armhole.

Combined facing. All-in-one facing for the neckline and armhole.

Separate Facings

Figures 1, 2

Facings are traced from the front and back patterns. The outer edge of the facing is trimmed 1/16 inch at the shoulder to zero at the shoulder tip and 1/8 inch in from side to zero at the armhole. This eliminates looseness and stretch. (Broken line indicates original pattern from which the facing is traced.)

Facings for Cut-Out Necklines and Armholes

In the following series, front facings can also be modified to offset stretch of cut-out necklines and sleeveless garments. The edge of the garment's cut-out is eased into the modified facing for a closer fit. (Review contouring for guidance when facing rather than bodice is modified.)

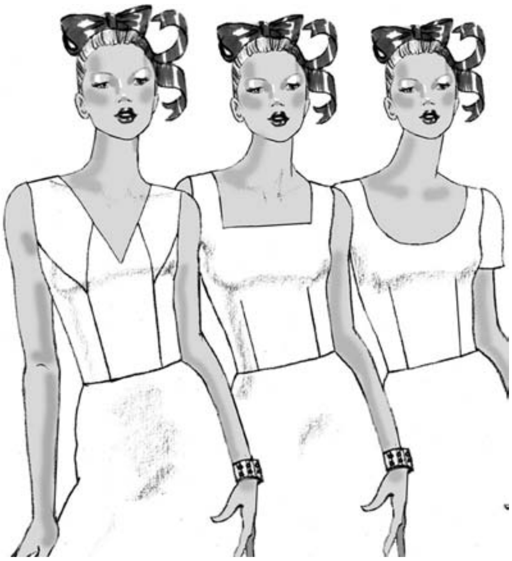


Figure 1

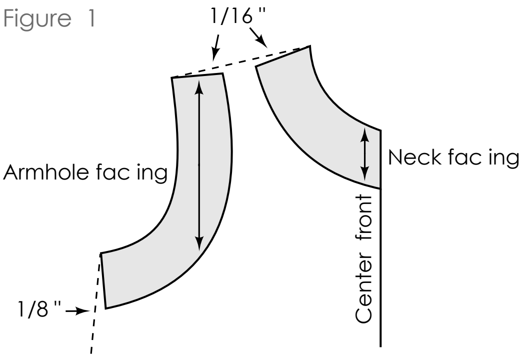
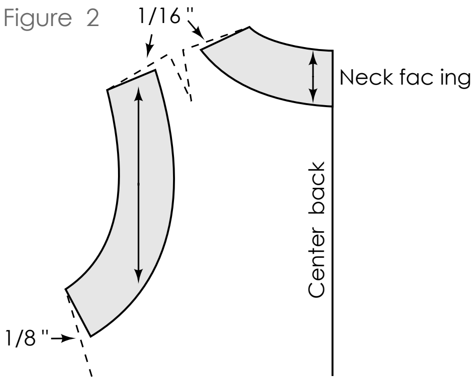


Figure 2

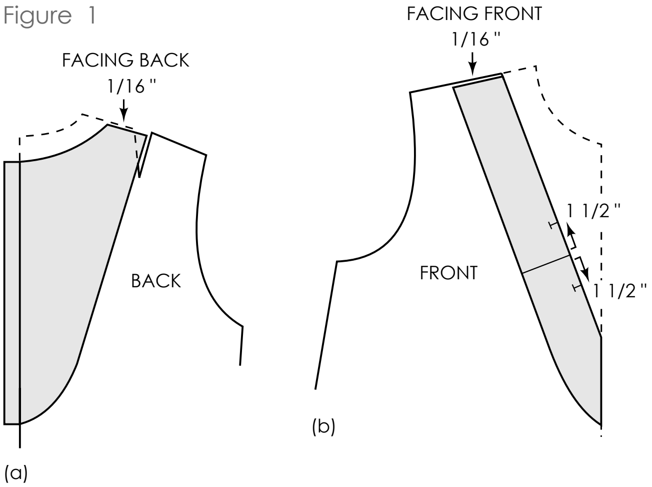


V-Cut Neckline Facing

Figures 1 a, b

- Trace the back and front patterns. Draw cut-out necklines and trim excess (indicated on broken lines). Redraw upper part of both patterns and draw facings.
- Back: The depth of the back facing should exceed depth of the front neckline (improves hanger appeal). Cut the back facing from paper.
- Front: Mark about one third up from center front neckline and draw a slash line. Mark notches, as shown. Trim 1/16 inch across shoulder. Cut facing from paper.

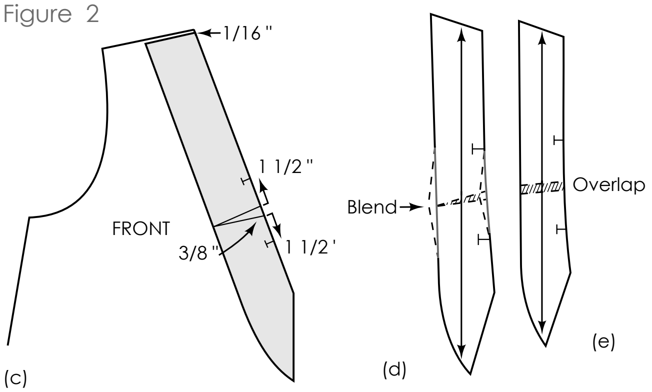
Figure 1


FACING BACK
1/16"
BACK
(a)
FACING FRONT
1/16"
FRONT
1 1/2"
1 1/2"
(b)

Figures 2 c, d, e

- Slash and overlap 3/8 inch and blend.
- Retrace and blend.
- Modify facing to offset stretch.
- For back facing, see Figure 1.

Figure 2

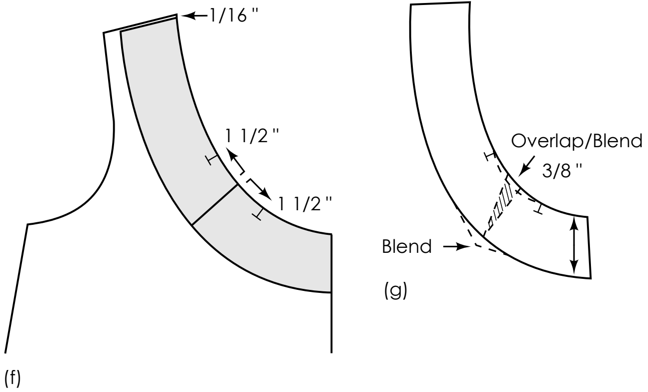

1/16"
1 1/2"
FRONT
3/8"
1 1/2'
(c)
Blend
Overlap
(d)
(e)

Scoop-Neckline Facing

Figures 3 f, g

- After tracing the pattern and drawing a scoop neckline, trim excess.
- Retrace the upper part of the pattern and draw facing; mark slash line and notches (shaded area shown in (f).
- Slash, overlap 3/8" and blend (g).
- For back facing, see Figure 1.

Figure 3

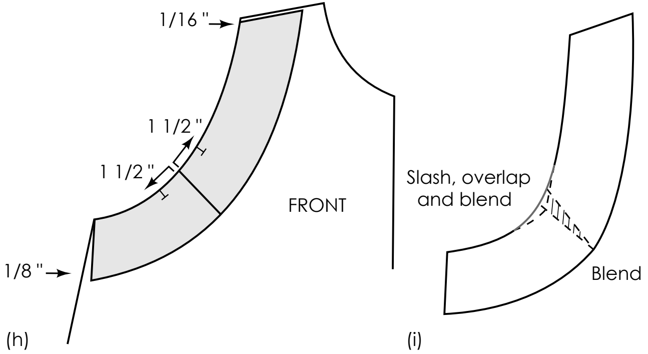

1/16"
1 1/2"
1 1/2"
(f)
Overlap/Blend
3/8"
Blend
(g)

Cut-Out Armhole Facing

Figures 4 h, i

- After tracing the pattern and drawing the armhole, trim excess.
- Retrace upper part of the pattern and draw facing; mark slash line and notches (shaded area shown in (h).
- Slash, overlap 3/8" and blend (i).
- Trace back pattern and facing.

Figure 4


1/16"
1 1/2"
1 1/2"
FRONT
1/8"
(h)
Slash, overlap and blend
Blend
(i)

Combined Facings

Figures 1, 2

- Combined facings are traced from the front or back patterns; trimmed 1/8 inch at shoulder, neck, and sides; and blended to zero, as shown.
- To complete the back facing, the shoulder dart is closed (broken line); otherwise, it would be too bulky.
- Facing length at center back varies according to depth of the front neck. Measurements given may be used for the basic neckline.

Figures 3, 4

- Facings for garments with stylelines should be developed before the bodice pattern is separated. However, if the pattern has been separated, place style seamlines together and trace section being faced.
- Trim 1/8 inch at shoulder, neck, and side, with line blended to zero as shown. (Insert twill tape along V-neckline to help prevent stretching.)
- Repeat for back (not illustrated). (Broken lines indicate original pattern.)

Figure 1

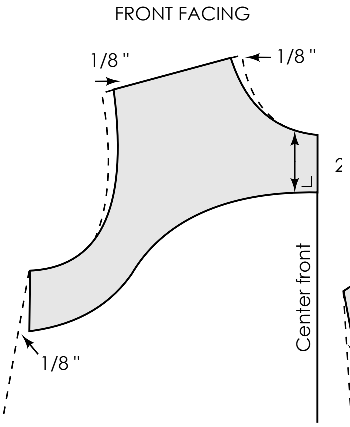


Figure 2

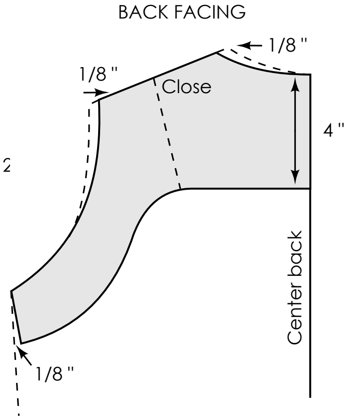


Figure 3

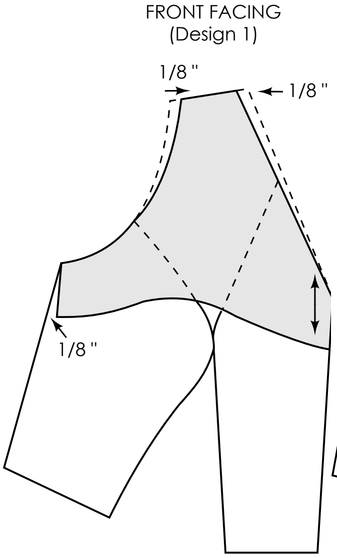
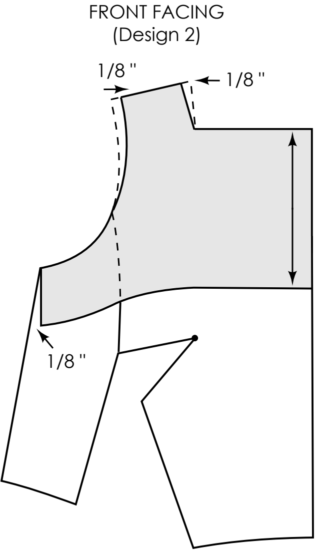


Figure 4



SELF-EVALUATION TEST

Fill in the blanks. Check your answers at the end of the chapter.

1. *Line/ligne* refers to button _______________.
2. Buttonhole size is determined by the button's _______________.
3. A facing's primary purpose is _______________.
4. Two facing types are _______________ and _______________.
5. Contour facing applies only to _______________ and _______________.
6. _______________ are traced before separating stylelines ending in armhole and necklines.
7. An all-in-one facing is a _______________ facing.
8. Wire loop, metal, plastic at the underside is a _______________ button.
9. Buttonholes start _______________ inch into area of the extension.
10. Vertical buttonholes are generally marked on _______________.

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

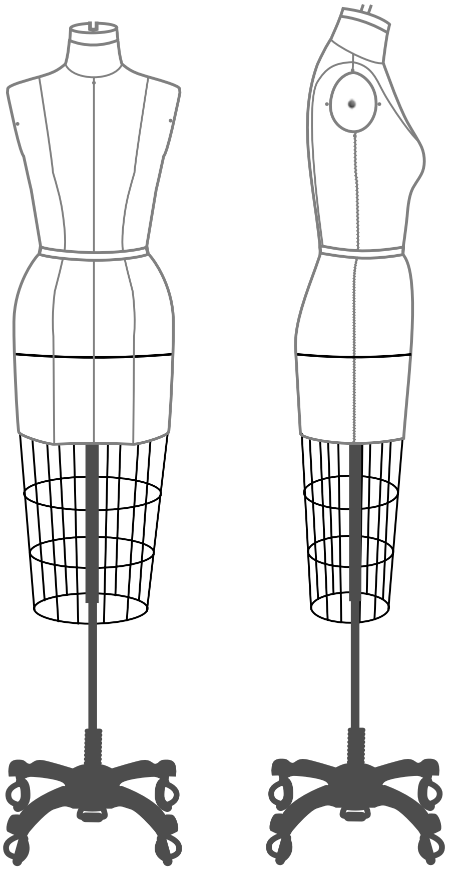
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

*Measuring the Arm

Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

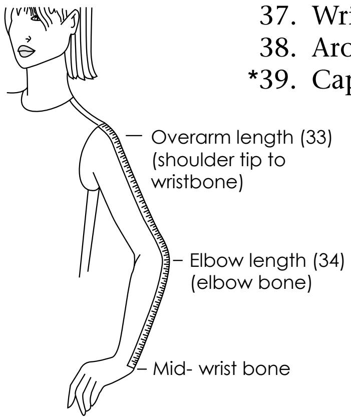
Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

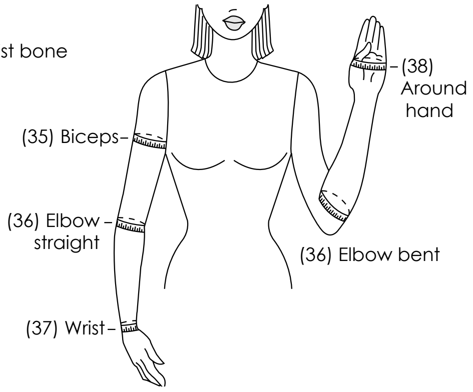
Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____

Length



Circumference



ANSWERS TO SELF-EVALUATION TESTS

1. Button size; **2.** Diameter; **3.** Covers raw edges; **4.** Separate, combined; **5.** Cut out neck/armhole; **6.** Facing; **7.** Fold-over; **8.** Shank; **9.** 1/8 inch; **10.** Placket

This page intentionally left blank

Plackets and Pockets

PLACKETS
  - Pointed Placket with Facing-in-One
  - Wing Collar Placket
  - Slit Opening with Placket

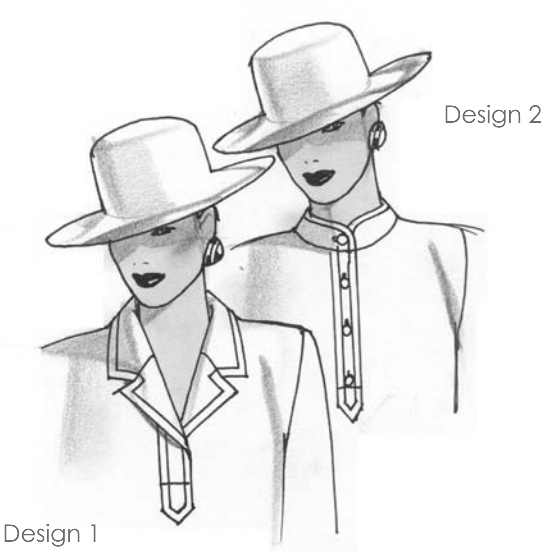
POCKETS
  - Pocket Classification
  - Inserted Seam Pocket
  - Jean Pocket
  - Pocket-in-One with the Side Seam
  - Accordion Pocket
  - Stylized Outside Pocket
  - Lift-Away Pocket
  - Pocket with Hidden Side Seam

From Chapter 17 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

PLACKETS

Plackets are finished slits or faced openings designed on all types of garments—bodice, sleeve, skirt, dress, jacket, pant, and so forth. Plackets can be of any length and width, with blunt, pointed, rounded, or stylized ends. Some plackets have buttons and buttonholes; others do not. When designed for neckline openings, the placket can end at the neck edge or be extended beyond the neck and become part of the collar. The measurement can be varied to create different effects.

Pointed Placket with Facing-in-One



Design Analysis

The pointed placket of Design 1 is set into a cutout section of the bodice. (The collar is not illustrated in the pattern plot.) Top-stitching finishes the placket. Design 2 is included for practice.

Pattern Plot and Manipulation

Figure 1

- Fold the paper.
- Place the center front on fold and trace.

Plan Placket

A–B = placket length (example: 8 inches)

B–C = 1 inch

C–D = 1 inch

- Square lines 3/4 inch from B and C. Label E and F.
- Draw a line from F to the neck, parallel to center front.
- Connect point F with D.

Plan Facing for Placket

- Draw the facing 2 inches from shoulder at neck, ending 3/4 inch from E. Connect the facing with E (indicated by broken line).
- Trace the placket and facing to underneath side.

Figure 1

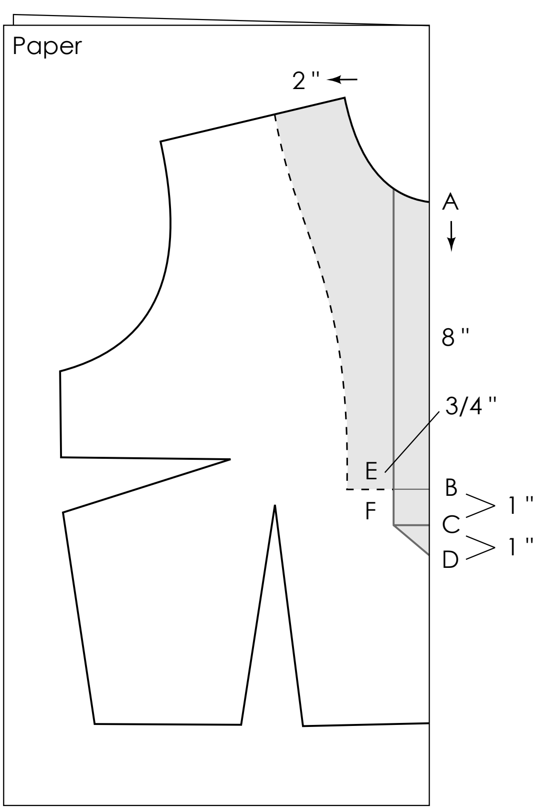


Figure 2

- Unfold and pencil in perforated line (broken line).
- Place paper underneath pattern and trace the placket and facing for the *right side* of garment (shaded area).
- Remove paper and pencil in the perforated line.

Figure 2

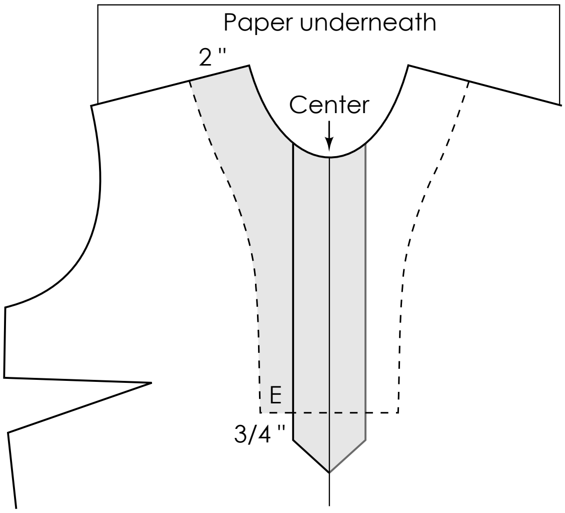


Figure 3

- Repeat for the other side, tracing placket across at level with point B (shaded area). Note that the point of the placket is not included.
- Remove the paper and pencil in a perforated line.

Figure 3

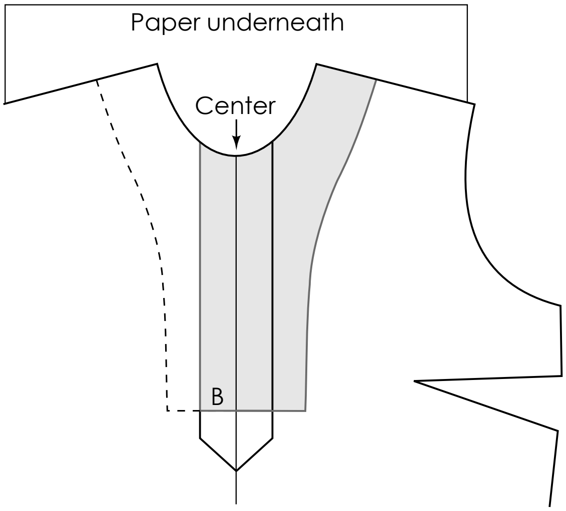


Figure 4 Placket for Right Side

- Fold the paper along placket edge. Square from the fold at neck, touching center line. (Broken line indicates original neck.) Trace the placket only (shaded area). Omit facing section. Unfold and pencil in a perforated line. (The finished pattern shape is shown.)

Figure 4

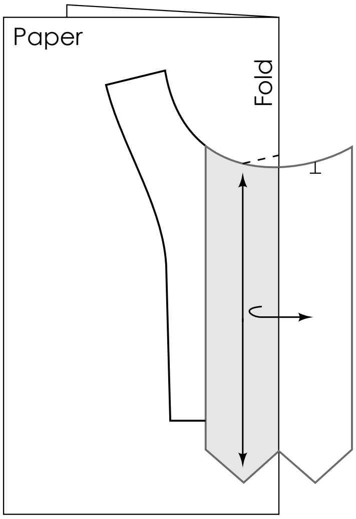
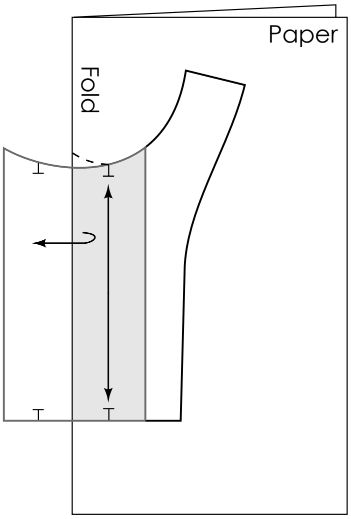


Figure 5 Placket for Left Side

- Repeat for the other side.

Figure 5



Figures 6, 7 Placket

- Add seams and label "Right-side-up." The shaded area indicates facing side of the placket.

Figure 6

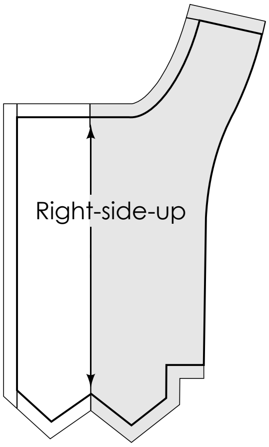


Figure 7

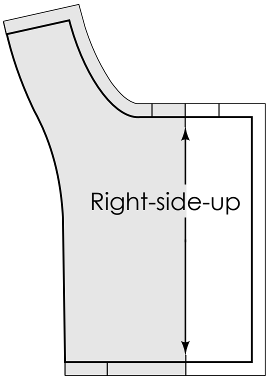
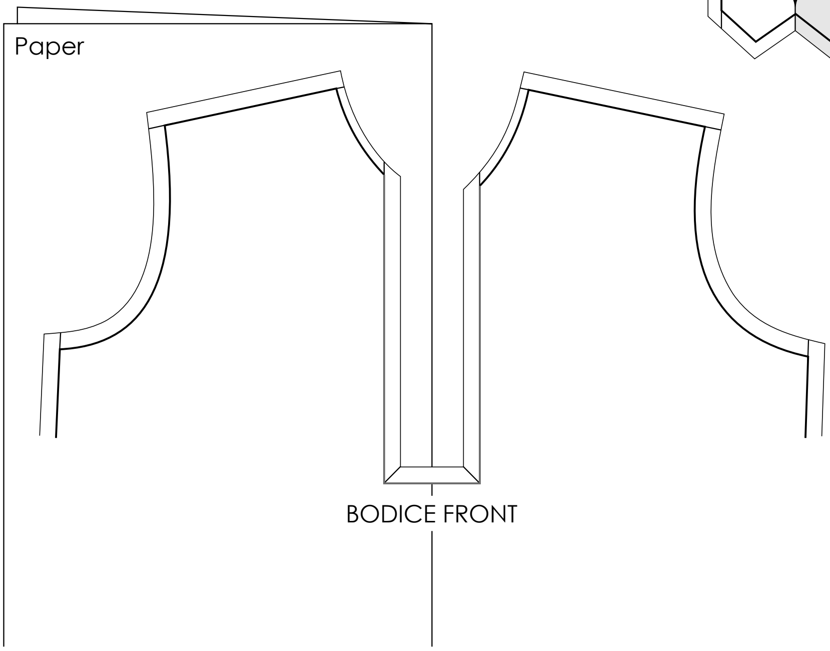


Figure 8 Bodice Section

- Add seams, notches, and grainline.
- Cut from the paper, trimming excess from placket inset area, and unfold.
- Cut basic back to complete the design.

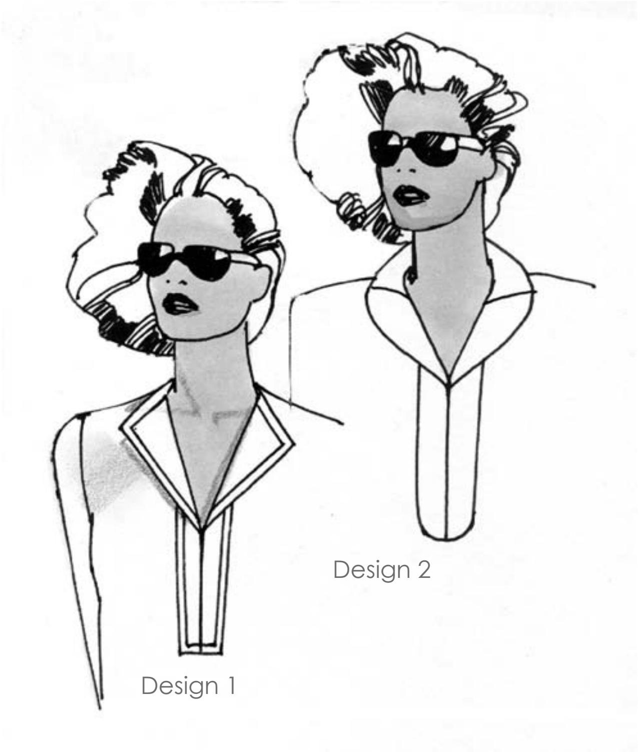
Figure 8



Wing Collar Placket

Design Analysis

Design 1 features an all-in-one placket and collar set into a cut-out opening in front. The placket is connected halfway, ending at the shoulder-neck location. The seam allowance is indicated because of its unique feature. Design 2 is included for practice.



Pattern Plot and Manipulation

Figure 1

- Trace front pattern on left side of the paper.

  A–B = placket length (example: 10 inches).

  A–C = depth of opening (example: 6 inches) Mark.

  A–E = 1 1/2 inches or more.

- Draw a curved line from E to F and E to C. Blend.

  B–D = 1 1/2 inches, squared from B. Connect a slightly curved line from D to F.

- Place paper underneath and trace the placket (B, D, F, E, C, to B). Remove paper and pencil in a perforated line.

Figure 1

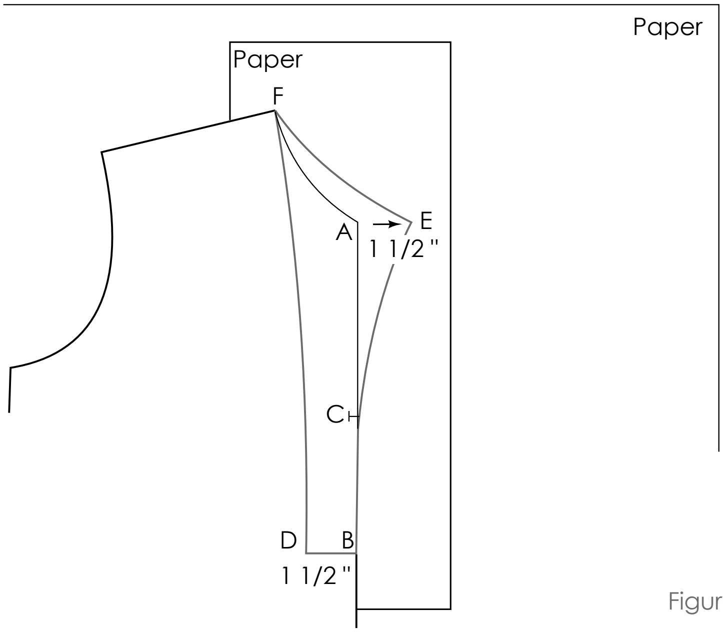


Figure 2

- Finish the placket with 1/4-inch seam allowance. Notch. Cut four pieces, self-faced (placket joined from C to B).

Figure 2

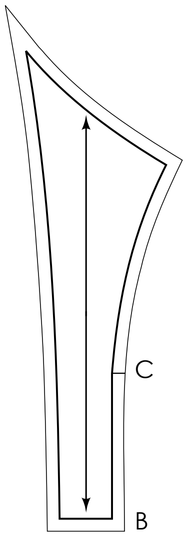
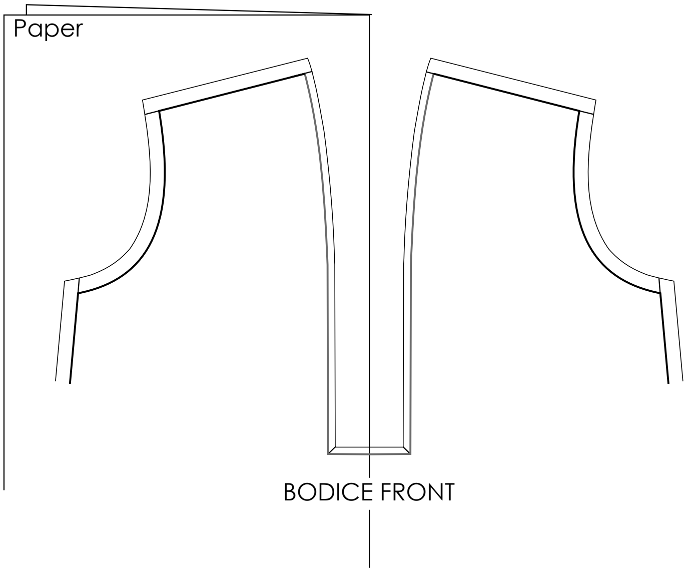


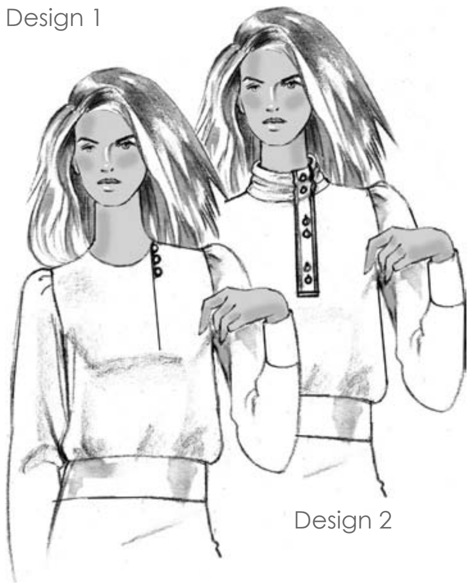
Figure 3 Bodice

- Fold paper at center front. Add seam allowance (1/4 inch where the placket is attached). Cut from the paper, trimming excess from the placket insert area.
- Cut the basic back to complete the design.

Figure 3



Slit Opening with Placket



Design Analysis

Placket band of Design 1 is attached to a slit on one side of the garment, and three spaghetti loops and buttons are used for closure. Design 2 is for practice.

Pattern Plot and Manipulation

Figure 1

- Trace and cut a full front.
- Draw an 8-inch parallel line for the slit, 2 inches out from center line.
- Draw another line 1/16 inch from the slit line. (Space is needed for the width of the pencil lead when tracing the pattern on the paper or fabric, or when making a marker.) Cut the slit line and crossnotch end. Label A and B.
- Mark for loops.
- Draw facing 1 1/2 inches wide (indicated by broken lines).
- Transfer facing by placing the paper under the pattern (broken line area).
- Remove the pattern. Pencil in facing.

Figure 2 Completed Facings

Facing can be separated, as illustrated, or developed as one-piece facing.

Figure 3 Placket Extension Band

- Draw a line twice the length of the slit (example: 16 inches).
- Draw a parallel line equal to the desired width (example: 1 1/2 inches).
- Label C and D and mid-point E. Band is self-faced. To stitch, fold the band at point E, with points C and D touching. Stitch across the top and on one side at band. The raw edge of the band stitches to the B side of the slit on the garment. (The band is the underlay to conceal the opening and for button attachment.) The facing is then attached to the garment, concealing all raw edges around the neck and slit.
- Draw the grainline.

Figure 1

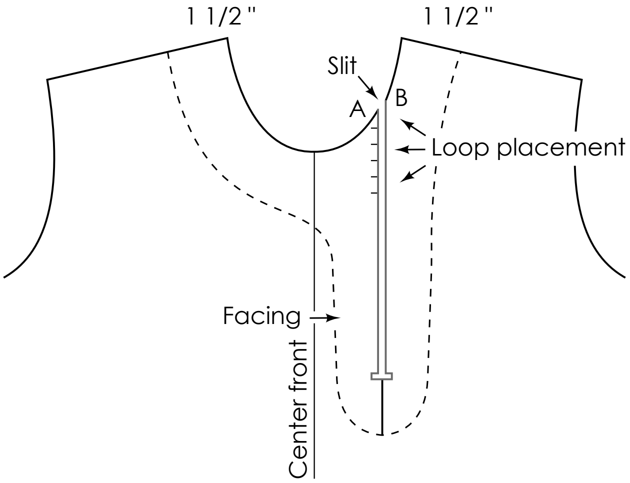


Figure 2

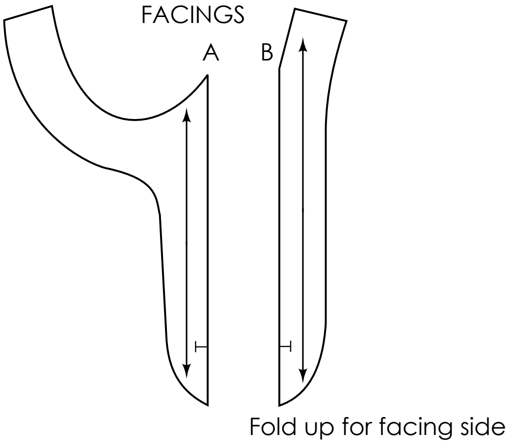
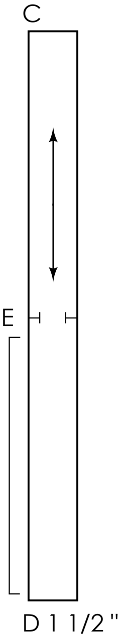


Figure 3



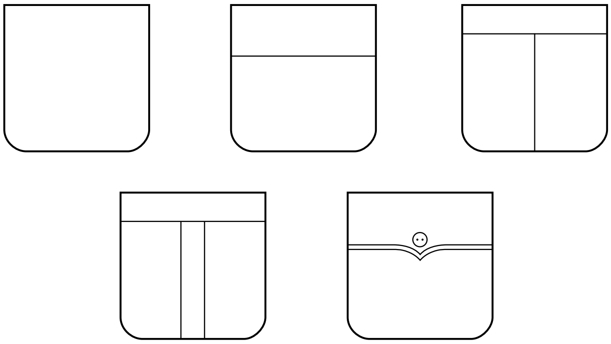
POCKETS

A pocket is a cavity or pouch that has a closed end and is usually sewn into or onto a garment. It can be a decorative feature, a functional feature, or both. Its primary use is as a depository or temporary holding place for items or hands. A pocket opening should be wide enough for hands and deep enough to keep objects from falling out. Pockets are designed for all types of garments. Pocket size, shape, and placement should complement the design of the garment.

Pocket Classification

Outside Pockets

Pockets such as the patch pocket are attached to the outside of a garment. This type of pocket can be designed in a number of sizes and shapes, with or without a flap.

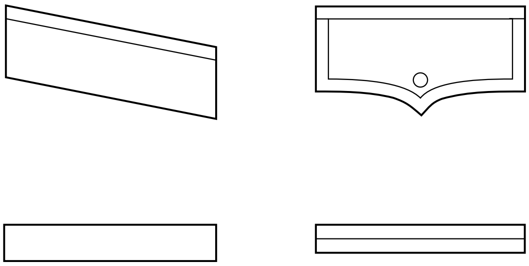


Inserted Pockets

Pockets are inserted into a straight or stylized seam, with the cavity or pouch on the inside of the garment. Inserted pockets can also be stitched to the inside of a garment, giving the appearance of a patch pocket on the right side of the garment.

Welt Pockets

Welt pockets are characterized by a separate strip or flap stitched to the pocket opening, with the pouch falling to the inside of the garment. The pockets can have a double welt or single welt, or they can be stylized with or without flaps.



Patch Pocket

Draw the pocket design on the shirt pattern. Mark the location of the pocket by chalk, or thread for individual garments. For mass-produced garments, industry uses a drill to burn a hole in the fabric. To cover the damage in the fabric, the punch/circle symbols are marked 1/8 inch in from the corners of the drawn pocket.

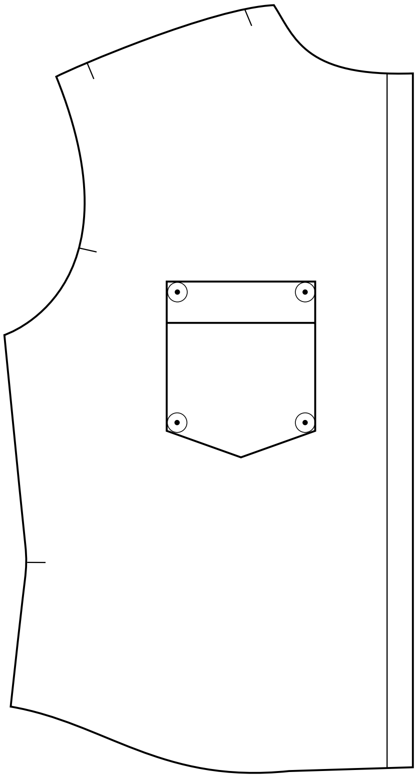
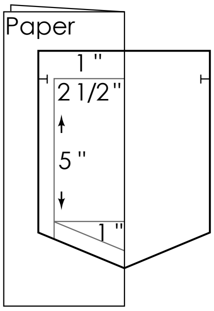


Figure 1



Basic Unlined Pocket

Figure 1

Fold the paper and draft half the pocket. Add seams of 1/2 inch and 1 1/4 inches at the opening. Cut from the paper. Cut in fabric and stitch to the garment. Sewing instruction follows.

Sewing Instruction

Figure 2

Fold the hem to the face side of the pocket and stitch the ends. Turn the seam and stitch the pocket hem.

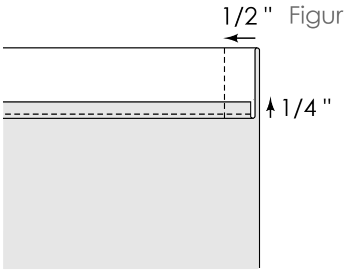


Figure 2

Setting the Pocket

Figure 3

Fold and press the 1/2-inch seams. Place the pocket on the garment, covering the marks. The pocket should be parallel with the center front.

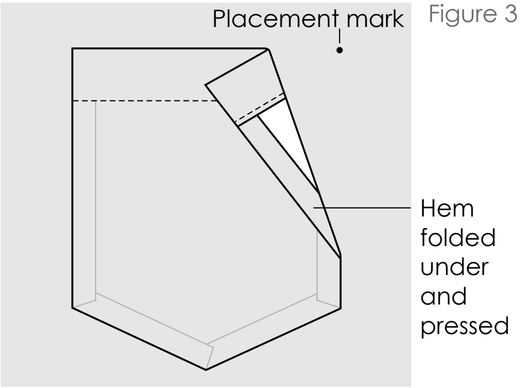

Placement mark
Hem folded under and pressed

Figure 3

Figure 4

Back tack and continue stitching around the pocket, ending with a back tack.

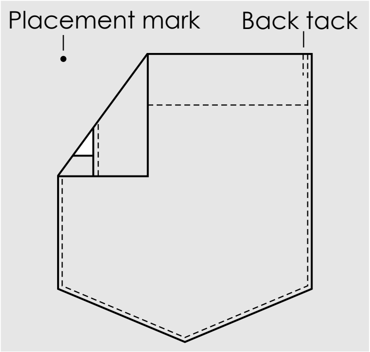

Placement mark
Back tack

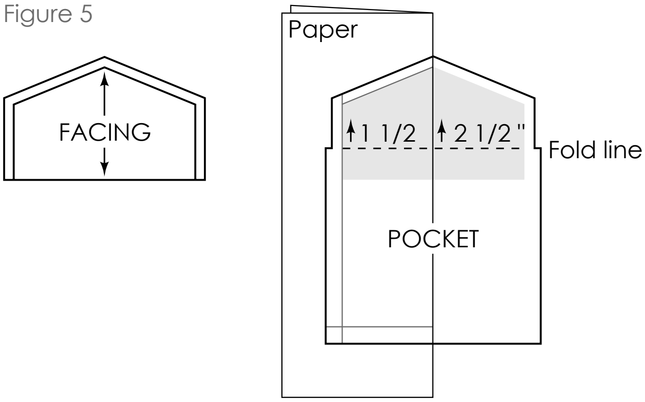
Figure 4

Pocket and Flap in-One

Figure 5

Trace pocket on the fold. *Options:* The pocket flap may be faced by tracing (shaded area). The pocket can also be cut twice (self-faced).

Figure 5

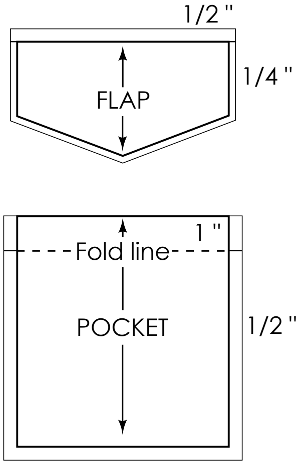

FACING
Paper
1 1/2
2 1/2 "
Fold line
POCKET

Pocket with Separate Flap

Figure 6

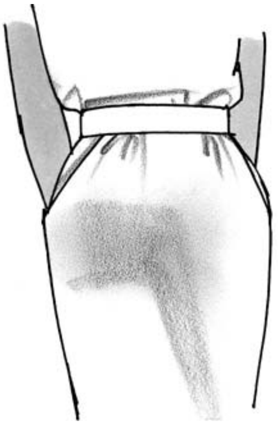
The basic pocket with a separate flap is illustrated. Follow the sewing instructions given in Figures 2, 3, and 4. See the flap instruction in Figure 8 within the Accordion Pocket Section later in this chapter.

Figure 6


1/2 "
1/4 "
FLAP
1 "
Fold line
POCKET
1/2 "

Inserted Seam Pocket

The entry is an angle line in from the side waist.



Entry/Pocket Pouch

Figures 1a, b

Trace the upper part of the pattern and draw the pocket shape (Figure 1a). Trace two copies.

- Draw the pocket entry on one copy of the pouch pocket (Figure 1b).
- Cut from the paper. Trim entry.

Figure 1a

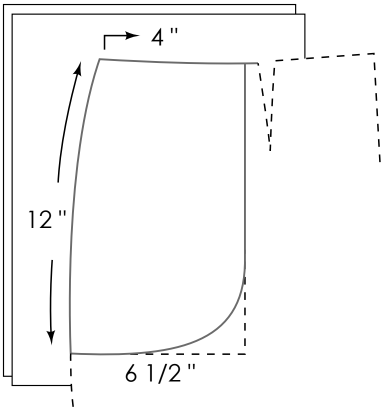
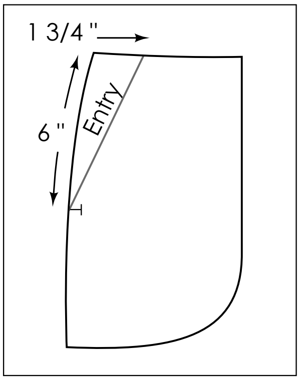


Figure 1b



Entry Facing

Figures 2a, b, c

- Trace and draw the pocket facing (shaded area, Figure 2a).
- Add 1/2-inch seams to the pocket pouch and 1/4 inch at entry. Label.
- Cut from the paper and trace the facing pattern (Figures 2b and 2c). Label.

Figure 2a

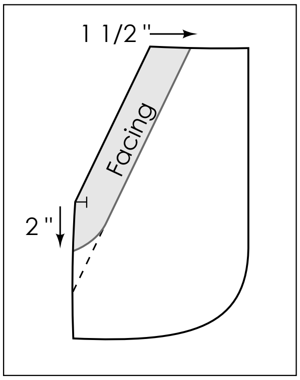


Figure 2b

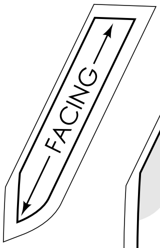
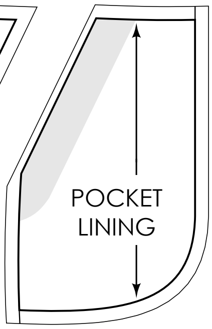


Figure 2c



Pocket Backing/Facing

Figures 3a, b, c

- Draw the facing for the backing (shaded area) (Figure 3a).
- Add 1/2-inch seams to the backing pocket.
- Cut pocket from paper and trace the back facing (Figures 3b and 3c). Label.

Figure 3a

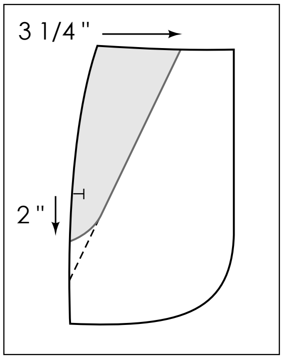


Figure 3b

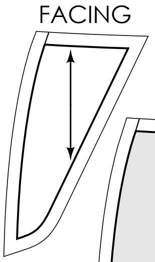
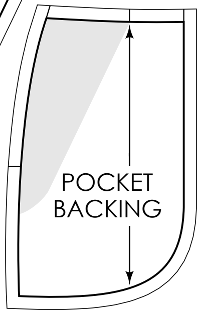
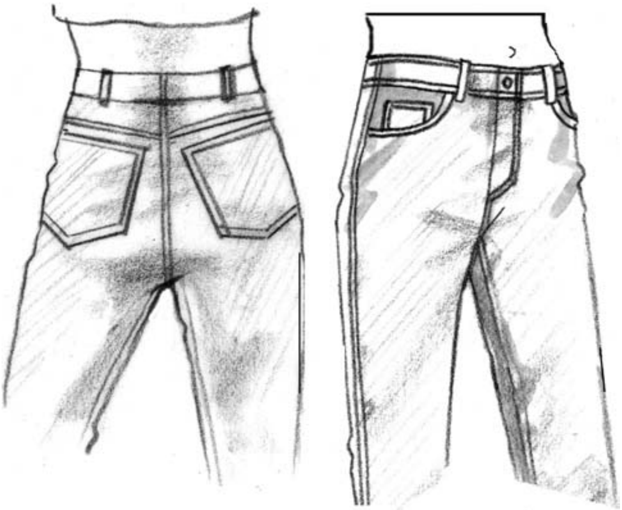


Figure 3c





Jean Pocket

Design Analysis

The pocket can be drafted from the waistline or from a lowered waistline.

The style is but one of a number of pocket variations. The small inside pocket is an option. Changing the style of the pocket will not affect the instruction.

The same pocket can be drafted with an abdomen or a pleat support.

Pocket Backing—Lining Pattern

Figures 1a, b

- The side waist is labeled X.
- Draw the pant pocket indicated by the measurements from point X (Figure 1a).
- Trace the pocket. Add 1/2-inch seams (Figure 1b).

Figure 1a

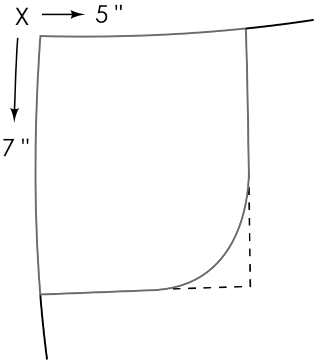
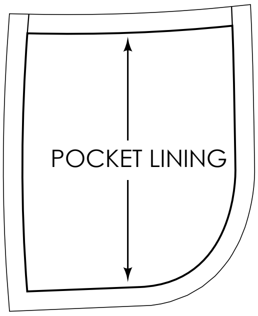


Figure 1b



Pocket Backing—Facing Pattern

Figures 2a, b, c

- Draw the facing pattern 2 inches up from the lining (Figure 2a).

Inside Pocket

- Draw the inside pocket using the measurements given. (The pocket ends at the facing hemline.)
- Mark punch/circles 1/8 inch in from each corner.
- Trace the facing. Add 1/2-inch seams (Figure 2b).
- Trace the inside pocket. Add 1/2-inch seams (Figure 2c).

Figure 2a

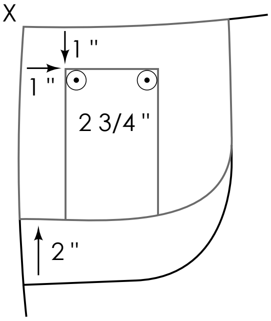


Figure 2b

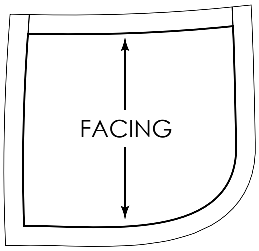
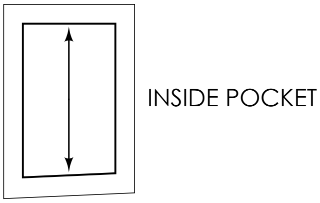


Figure 2c



Pocket Entry—Facing Pattern

Figures 3a, b

- Draw the shape of the pocket entry using measurements from point X (Figure 3a).
- Trace the pocket entry. Add 1/2-inch seams and 1/4 inch at entry (Figure 3b).

The pant pattern is trimmed to the entry shape. Add 1/4 inch at entry and 1/2 inch to the remaining patterns.

Figure 3a

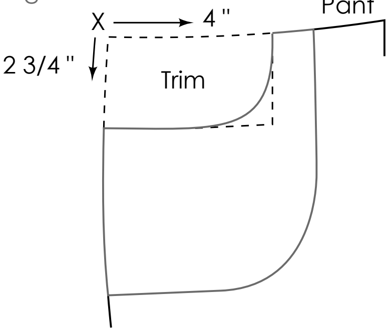
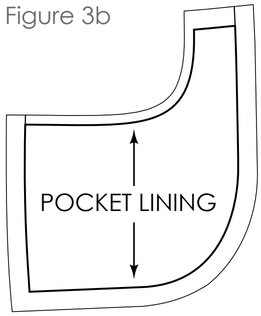


Figure 3b



Pocket-in-One with the Side Seam

Design Analysis

The pocket is drafted from a straight side seam or styleline on any garment (a flare skirt is illustrated).

Figure 1

- Trace the patterns.
- Draw the front pocket. Fold the paper and trace.
- Unfold and outline the traced pocket.
- Mark 1 1/2 and 6 inches down from the waist (entry space), and 1/8 inch from the fold line.
- Trace the front pocket to the back pattern.
- Add 1/2-inch seams and cut from the fabric.

Figure 2

Sewing Guide

- Pin the right side of the fabrics together.
- Stitch the side seams and pockets together.
- Stitch down and up from each mark to establish the pocket entry.
- Fold the pocket to the front waist and stitch.

Figure 1

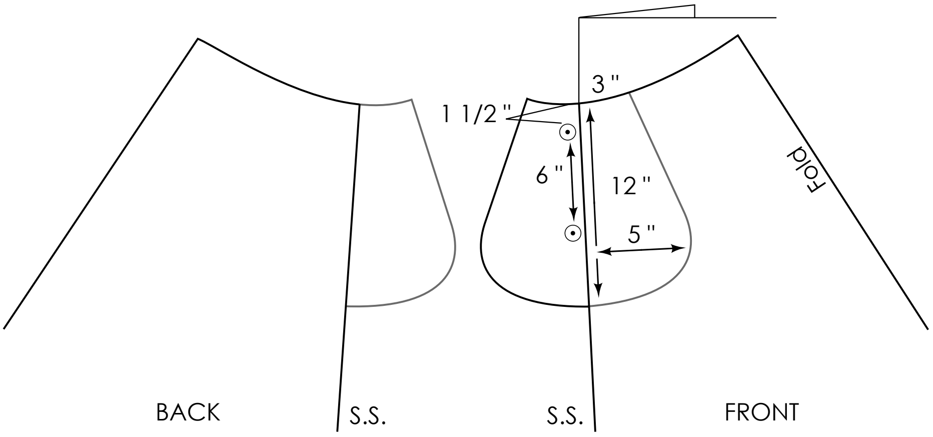
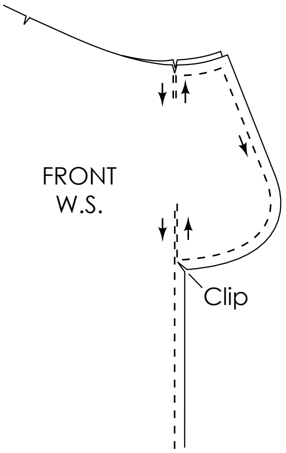


Figure 2



Accordion Pocket

The pocket looks like the bellows of an accordion. It is a utility pocket for military and industrial garments. The pocket has now become a fashion detail for sportswear such as pants, jackets, coats, and tailored dresses.

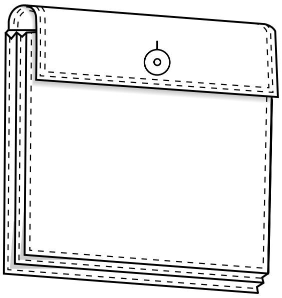


Figure 1
The pocket's width and length should be in perfect balance with the design of the garment.

- Draw the pocket rectangle 6 × 5 inches. Mark corners A.
- Pleats desired: 2 pleats (or more). (Depth of each pleat is 3/4 inch, plus the underlay of 3/4 inch totals 1 1/2 inches.)

A–B = 3 inches (two pleats). Square from A and up front B. Repeat on other side.

A–C = A–B, squared down from A, square across.

Figure 1

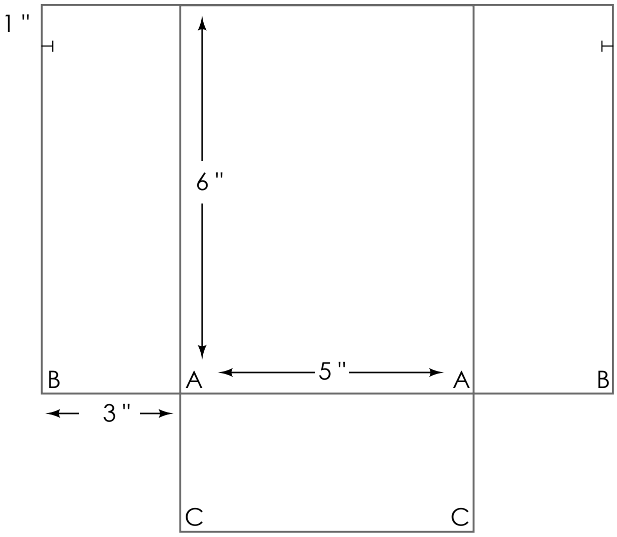


Figure 2
B–D = 3/4 inch (pleat depth).

C–E = B–D

- Square lines in from D and up from E, and mark F.
- Divide B to F and C to F into fourths (indicated by the broken lines).
- Number each section as illustrated.
- Draw connecting lines from 1 to 2 to 3 to 4 to F. Repeat the process on the other side of the pocket.

Figure 2

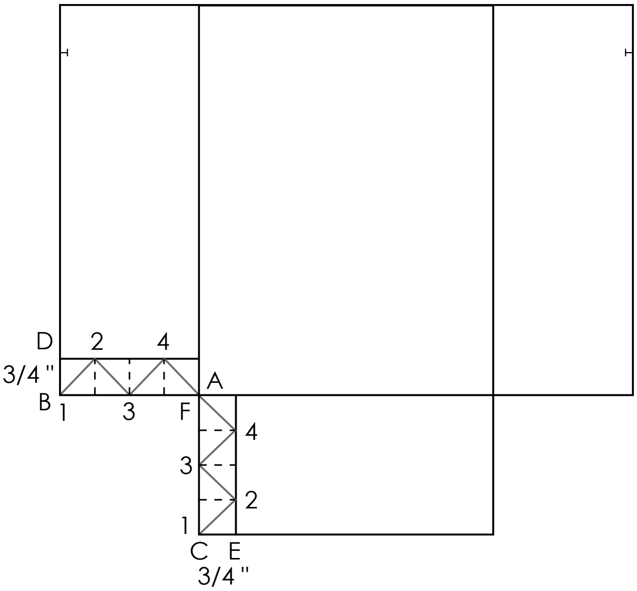


Figure 3
Draw the pocket flap 5 × 2 inches. Add seams. Interface the pocket flap.

Figure 3

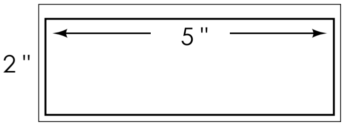
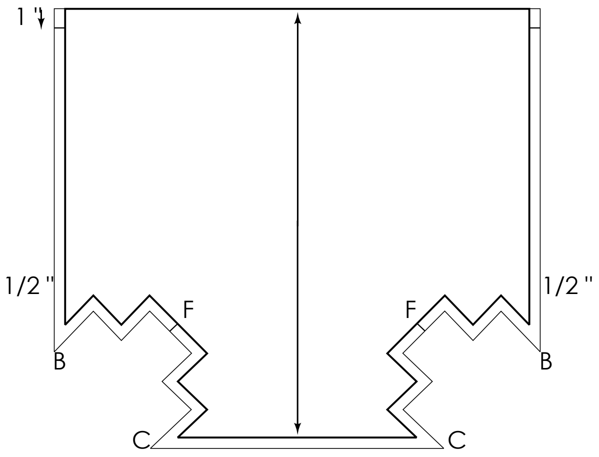


Figure 4

- Add seam allowance.
- Trim the unneeded part of the zigzag.
- Cut the pocket and flap in fabric. Interface the pocket flap.

Figure 4



Stitching Guide

Figure 5

- Turn the fabric wrong-side-out.
- Turn hem 1/4 inch and stitch.

Figure 6

- Bring C to B together and stitch, ending at F. Clip and repeat, stitching on the other side. Turn the fabric to the right side.

Figure 5

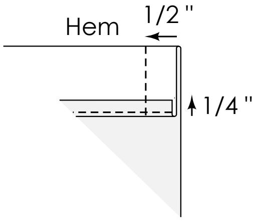
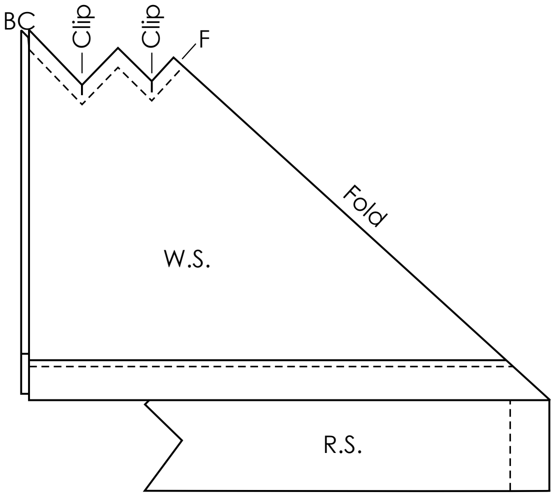


Figure 6



Figures 7a, b

- Edge-stitch each pleat.
- Fold the pleats in place and press together.
- Place the pocket on the garment and fold the seam allowance under. Edge-stitch the pocket to the garment (Figure 7a).

  To secure the pleats, fold-back the first pleat and stitch the remaining pleats to the garment (Figure 7b).

Figure 7a

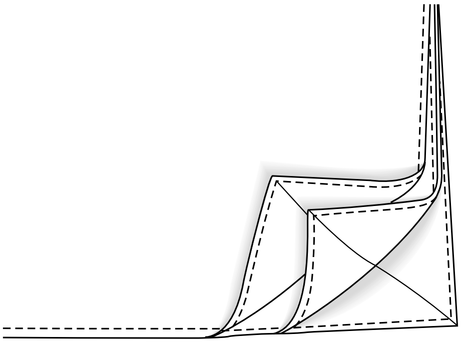


Figure 7b

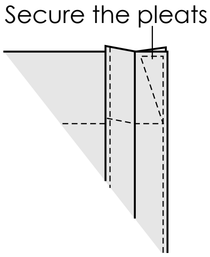
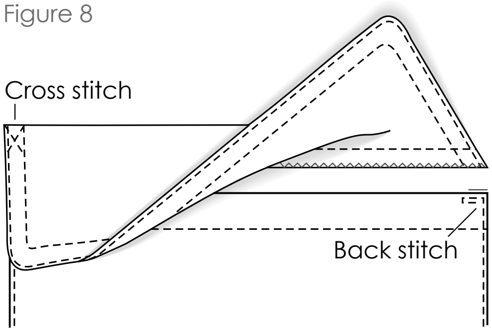


Figure 8 Pocket Flap

- Place right sides together—stitch and turn right-side-out. Press and top-stitch. Overlock or serge the raw edge.
- Place the pocket flap 1/2 inch above the pocket and stitch across. Angle-stitch at each end to secure.

Figure 8



Stylized Outside Pocket

Outside pockets can be of any design. They are stitched flat on top of the garment.

Figures 1a, b

- Trace the garment and draw the pocket.
- Trace the pocket. Draw and trace the facing and interfacing patterns. Notch 1 inch (X).
- Add 1/2-inch seams, 1/4 inch at entry.
- Stitch facing to pocket. Fold seams and press. Stitch the pocket to the garment and stitch to X.

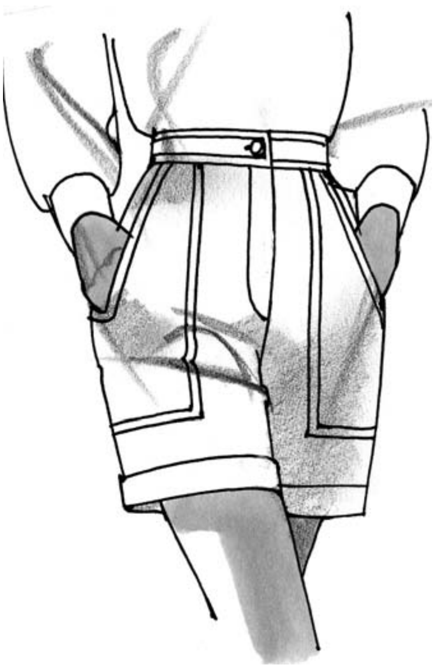
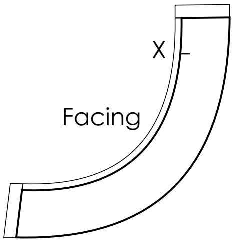
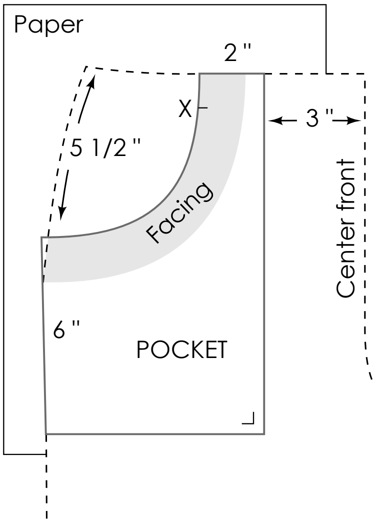


Figure 1b



Cut 4
and 2
interfacing

Figure 1a



Lift-Away Pocket

Figure 1

A band is stitched around three sides of the pocket (excluding entry). A buckle is attached to a belt (self or leather). A belt is stitched to garment.

Figure 2

Draw pocket width and length, as desired. Allow 1 inch for hem at the length end.

Figures 3a, b, c, d

Banding length: Equals 3 sides of the pocket.

Banding width: 1 inch (or more) (Figure 3a).

Buckle/belt: Buckle controls the width and length of the closure (Figure 3b).

Buckle hold secures the buckle (Figure 3c). It is stitched to the belt (Figure 3d).

Sewing guide: The top of the belt is stitched to garment.

Closure: Velcro (attached to pocket and belt).

Figure 1

Closure: velcro

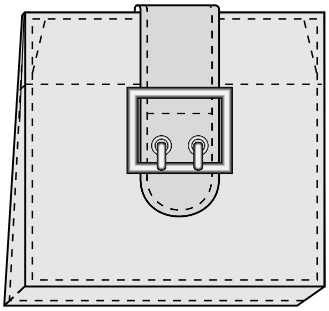


Figure 3b

Buckle

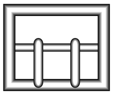


Figure 3c

Buckle hold

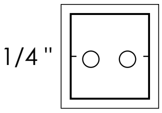


Figure 2

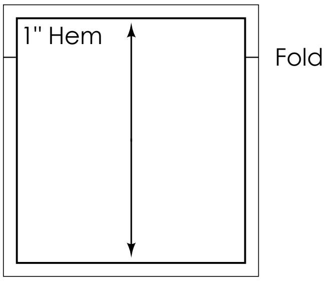


Figure 3d

Belt

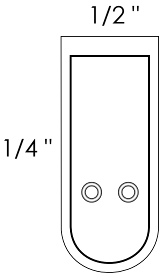
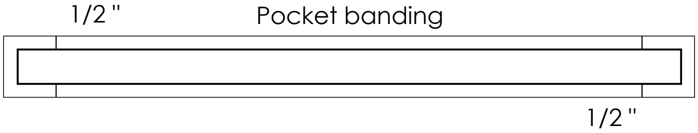


Figure 3a



Pocket with Hidden Side Seam

Design Analysis

The curve of the side seam is straightened to develop this style of pocket. The extra fullness can be gathered or taken up by folded pleats (front and back). Entry at side seam.

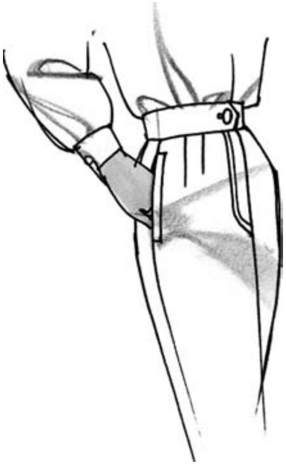
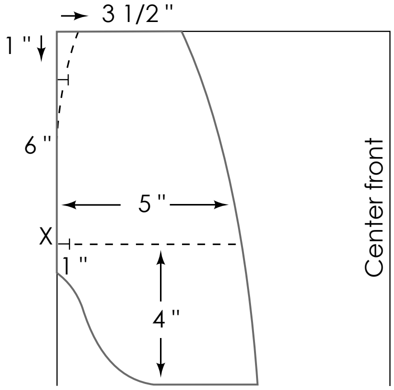


Figure 1

- Draw a line up from the outermost curve of the front hip to waist level.
- Mark notches 1 inches and 6 inches down from side waist. Label X (entry).
- Draw a pocket pouch 1 inch down from X using the measurements given.
- Trace two copies of the pocket.

Figure 1


3 1/2 "
1 "
6 "
5 "
X
1 "
4 "
Center front

Sewing guide: Stitch the pocket backing (B) to the panel (A). Stitch the facing to the front pant entry.
Pin the front and back side seams together and stitch (back stitch) 1 inch down from the side waist.
Stitch (back stitch) down from X.
Sew the pocket together.

Figures 2a, b, c

- *First copy:* "Pocket Facing." Add 1/2-inch seams (Figure 2a).
- *Second copy:* Draw and cut a 1-inch panel parallel line from the pocket (Figure 2b).
- Label the remaining pocket "Pocket Backing" (Figure 2c). Add 1/2-inch seams.

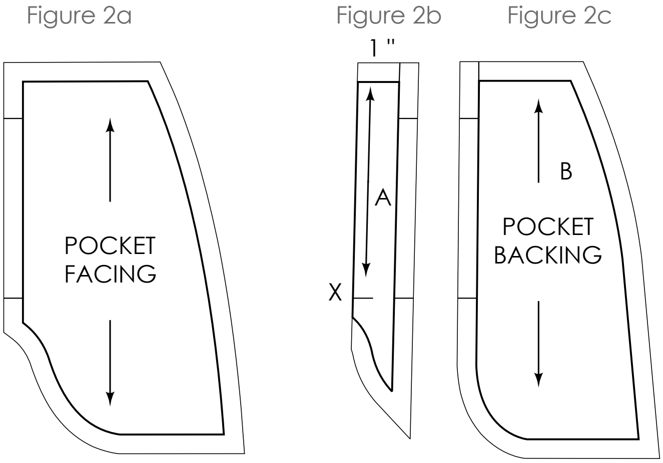
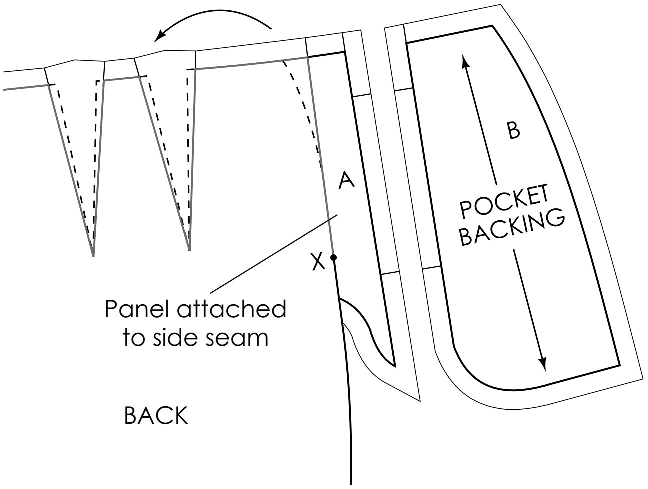


Figure 2a
Figure 2b
Figure 2c
1 "
POCKET FACING
A
X
B
POCKET BACKING

Figure 3

- Draw a line up from the outermost curve of the back hip to waist level.
- Increase each dart equally to take up the extra fullness. (Broken line is the original dart.)
- Tape the 1-inch panel (A) to the side seam of the back pattern. Add 1/2-inch seams.

Figure 3


A
X
B
POCKET BACKING
Panel attached to side seam
BACK

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

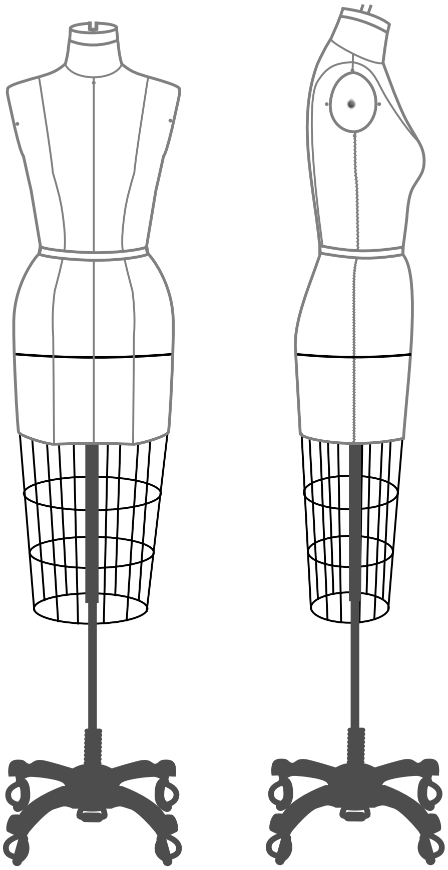
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

*Measuring the Arm

Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

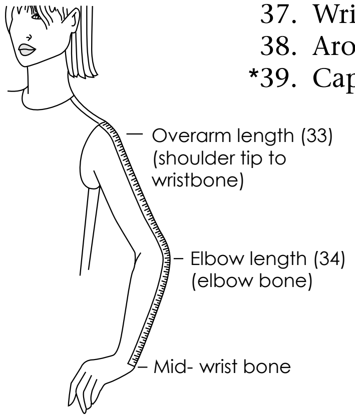
Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

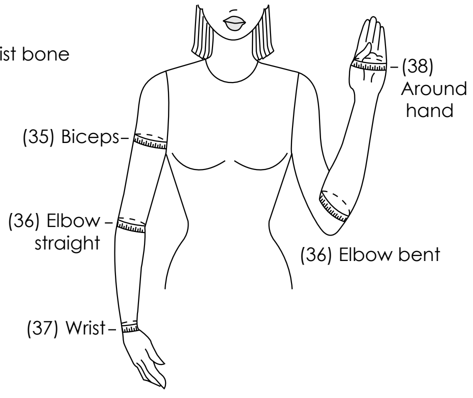
Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____

Length


Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone

Circumference



This page intentionally left blank

Dresses Without Waistline Seams

From Chapter 18 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

Dresses Without Waistline Seams

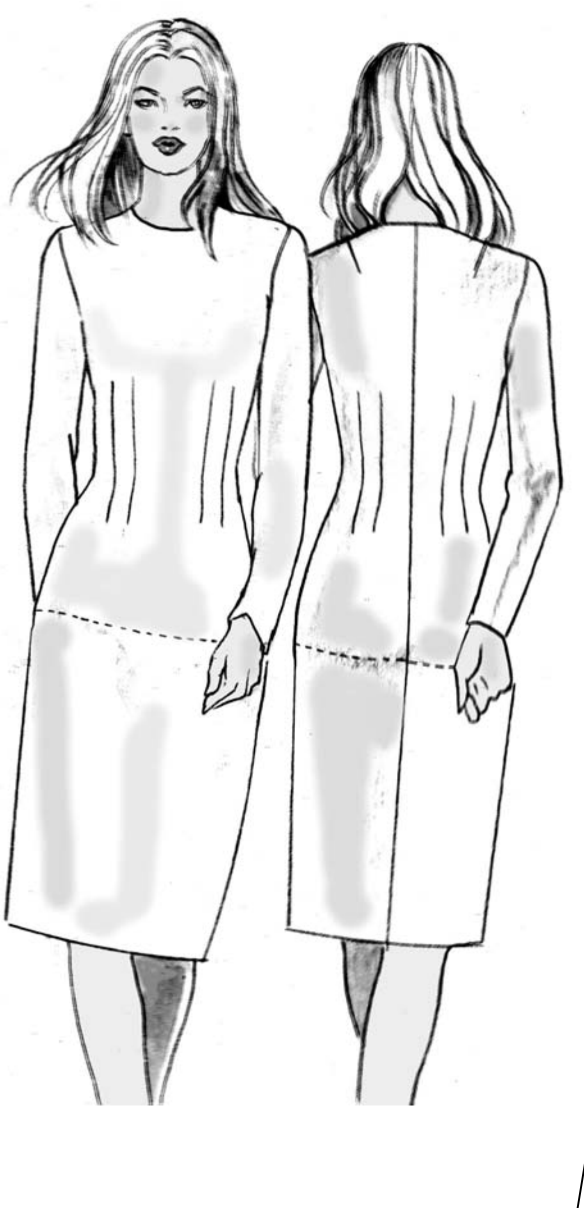
(Based on Torso Foundation)

TORSO FOUNDATION
  Torso Draft
  Contour Guidelines
DRESS CATEGORIES
THE THREE BASIC DRESS FOUNDATIONS
  Knit Dress Designs
  Shirtmaker Dresses
  The Sheath (Fitted Silhouette)
  The Box-Fitted Silhouette
  The Shift (Semi-Fitted Silhouette)
PRINCESS-LINE FOUNDATION
  Stylized Princess with Bloused Hem
PANEL DRESS FOUNDATION
EMPIRE FOUNDATION
TENT FOUNDATION
SPECIAL PATTERNMAKING PROBLEMS
  Gathers Crossing Dart Areas
  Stylelines Crossing Dart Areas
  Stylized One-Piece Front
THE ULTIMATE TESTS

TORSO FOUNDATION

The torso foundation is a bodice and skirt combination without a waistline seam. The foundation ends at hip level (HBL). Length is added to or subtracted from the foundation as required by the design. The fit is controlled by sets of double-ended darts. One foundation is developed with mid-shoulder darts, and the other foundation is developed with side darts. Both are illustrated, starting with the shoulder-dart foundation. The side-dart torso is based on a traced copy of the shoulder-dart foundation. It has many purposes, one of which is marking contour guidelines. The torso is important as a base for other basic foundations: shirts, blouses, dartless knit tops, dresses and gowns (without waistline seams), jackets, coats, and activewear (bodysuits, leotards, and swimwear).

Three versions for developing the back torso are discussed. One version creates greater length at the center back; the second version creates greater fullness across the back. A compromise is offered as a third version.



Torso Draft

Measurements Needed

(25) Hip depth: CF _____ CB _____

(23) Hip arc: F _____ B _____

Pattern Plot and Manipulation

Figure 1

Front

- Trace the basic one-dart pattern. Cut from paper.
- Label side waist X.
- Draw a line from mid-shoulder to bust point. Cut slash lines to, not through, the bust point.

Back

- Trace and cut the back pattern.
- Label the side waist (X).
- Draw a slash line, as illustrated. Do not slash until later instruction.

Figure 1

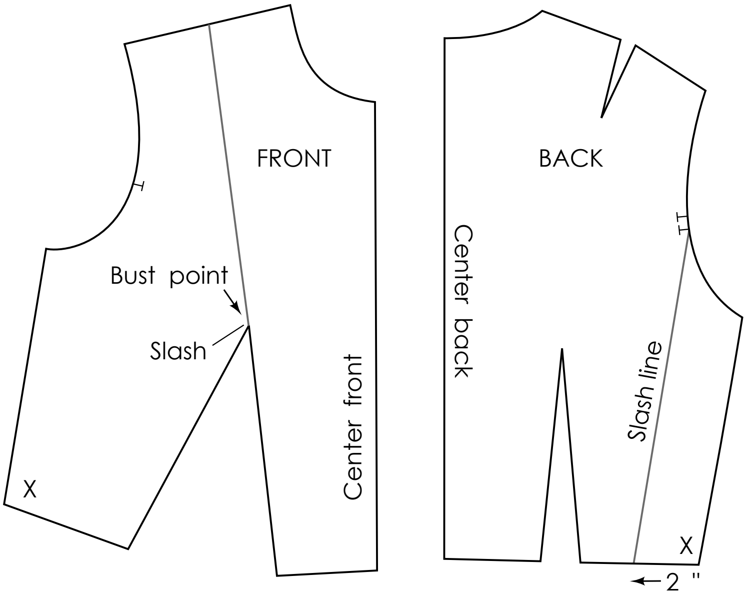


Figure 2 Front Lower Torso

- Square a line and mark the corner A.

  A to B = front hip arc, plus 1/2-inch ease. Mark.

  B to C = A–D squared up from B and squared from C to the center line (D).
- Dot mark 3/4 inch in from C.

Figure 3

- Place the bodice on the square line. The center front touches D. Secure.
- Close the waist dart until point (X) touches the square line. It may not touch the dot mark.
- Trace the pattern, omitting the broken lined area.
- Remove the pattern.

Figure 2

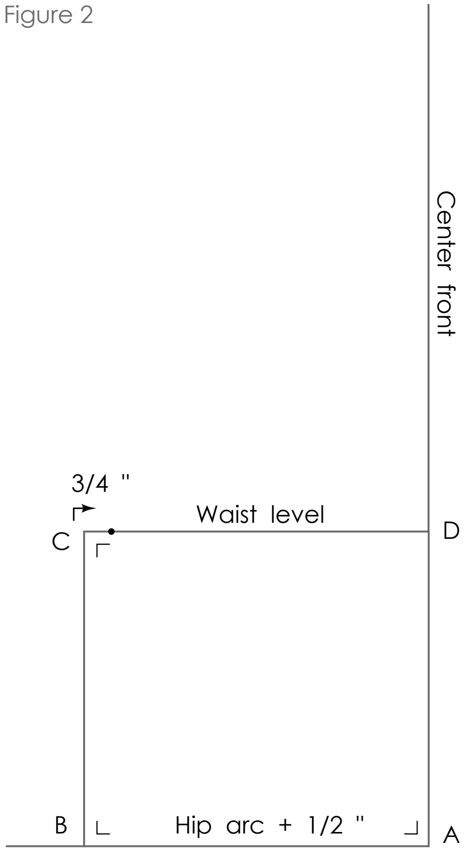

Center front
3/4 "
Waist level
C
D
B
Hip arc + 1/2 "
A

Figure 3

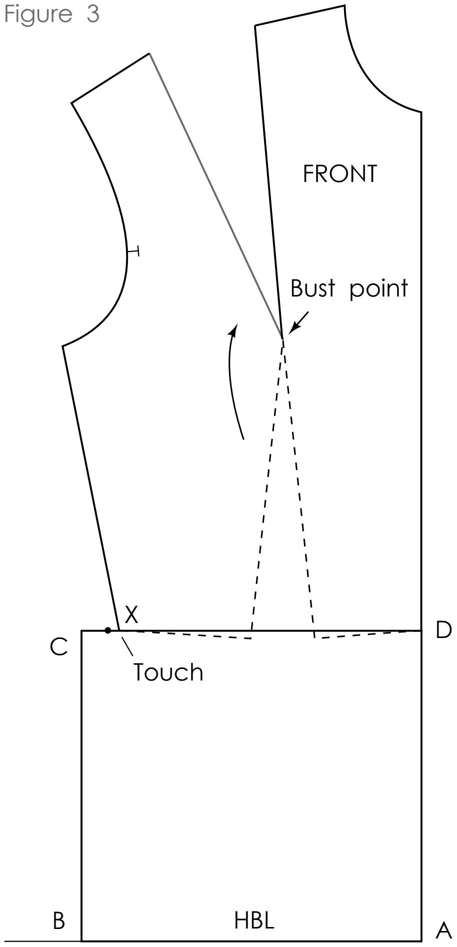

FRONT
Bust point
X
C
D
Touch
B
HBL
A

Figure 4 Back Lower Torso

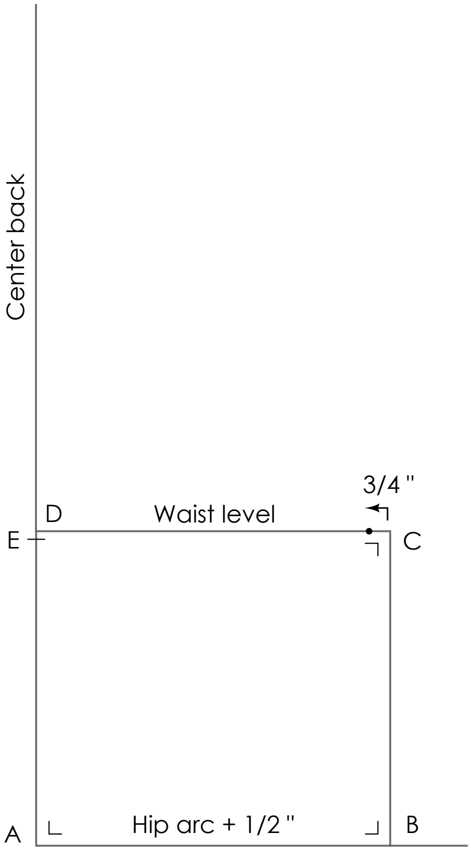
- Square a line and mark corner A.

  A to B = back hip arc, plus 1/2-inch ease. Mark.

  B to C = front hip depth, squared up from B, and squared from C to the center line (D).
- Dot mark 3/4 inch in from C.

  A to E = center back hip depth. Crossmark.

Figure 4


Center back
3/4 "
D
Waist level
E
C
A
Hip arc + 1/2 "
B

Version 1—Center Back Length Is Increased

Figure 5

The center back pattern is placed on the vertical line, with the side waist (X) touching the C line. The pattern is traced and removed. The added length is between the center back waist and crossmark (E).

Version 2—Width Across the Back Is Increased

Figure 6

- Cut a slash line or use the pivotal-transfer method.
- Extend the C line and place center back at point E.
- Trace to the curve of the armhole and pivot until X at the side waist touches C line. Trace remaining armhole but not side seam. Remove the pattern.
- Draw the side seam to the waist 3/4-inch mark.

Figure 5

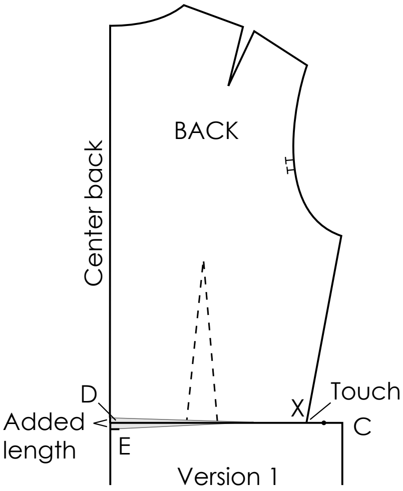
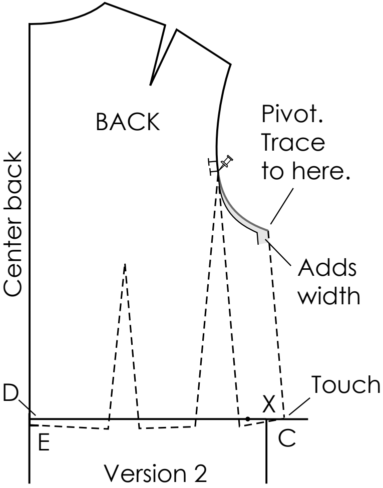

BACK
Center back
D
Added length
E
X
Touch
C
Version 1

Figure 6


BACK
Center back
Pivot. Trace to here.
Adds width
D
E
X
Touch
C
Version 2

Version 3—Compromise

Figure 7

- Place center back waist at (D). Trace to curve of the armhole.
- Pivot at the curve of the armhole until the side waist (X) touches the (C) line. Trace, not including the side seam. Remove the pattern.

Figure 7

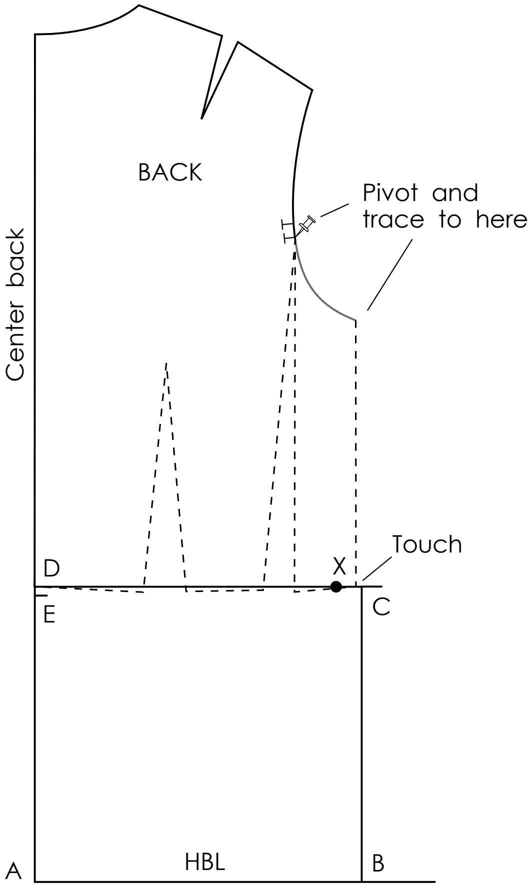

BACK
Pivot and trace to here
Center back
D
E
X
Touch
C
A
HBL
B

Figure 8

Shoulder Dart

- Draw shoulder dart legs to the bust point.
- Center the dart point 1 inch up from bust point.
- Draw the dart legs to dart point.
- Draw the hipline curve, as illustrated.

Double-Ended Darts—Front

- Square a line down from the bust point, ending 3 inches below waist level.
- Square a guideline 1 inch below the bust level.
- Draw a parallel line 1 3/4 inches from this line.
- Follow illustration for dart intake. Draw dart legs.

Figure 9

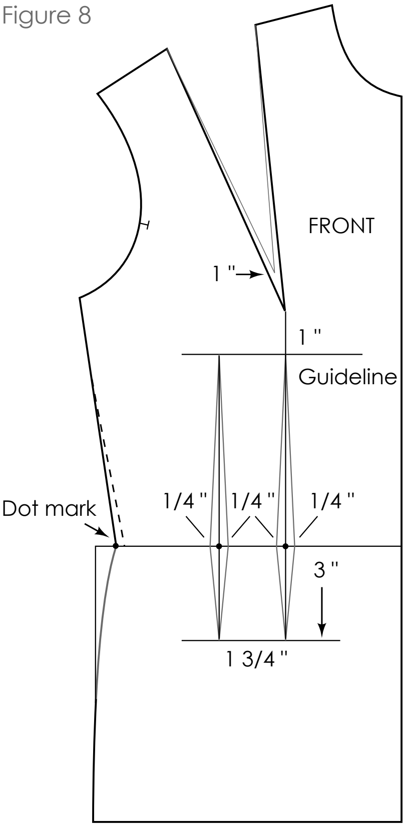
- Draw hipline curve to dot mark and continue the line to the armhole.

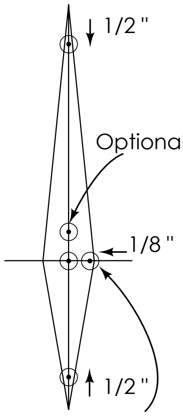
Double-Ended Darts—Back

- Square guidelines from center back 1 inch below the armhole level and 5 1/2 inches below waist.
- Mark 3 1/4 inches and 5 1/2 inches from center back waist.
- Square lines from each mark to the guidelines.
- Follow the illustration for dart intake. Draw dart legs.

See the example for a punch and circle guide for marking darts. The side seams or darts may be taken in for a closer fit, providing that the HBL remains parallel with the floor. Adjust the side seams if stress appears. Shorten the dart points if tightness appears at the hip.

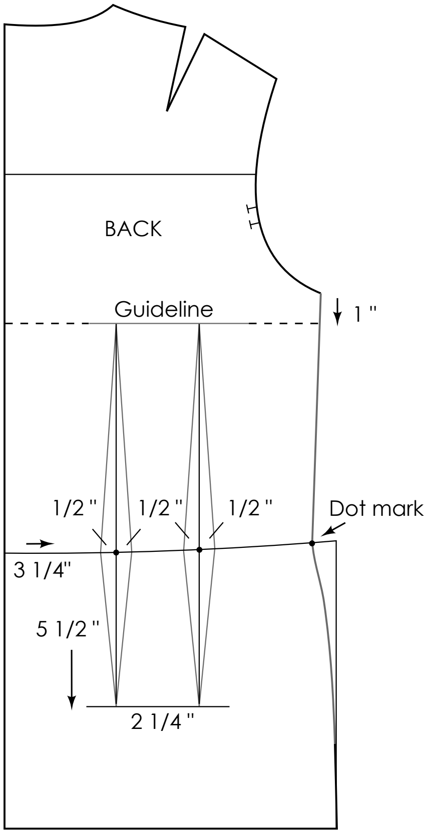
Figure 8





Punch- circle guide
(not marked on blind side)

Figure 9



Contour Guidelines

Trace a copy of the back and front shoulder-dart torso (previous page). Transfer front shoulder dart to the side seam; see Figure 10b. Draw contour guidelines on the foundation patterns. If the bust cup is more or less than a B, follow instructions (Figures 11a and 11b).

Figures 10a, b, c

Front

Contour guidelines for designs with:

1. Cut-out necklines
2. Cut-out armhole
3. Sleeveless armholes
4. Empire stylelines
5. Cleavage
6. Strapless (combines 1, 2, 3)

   Draw a side seam 1/2 inch from the armhole to zero at the waist. Mark 1/8 inch at mid-shoulder and connect to shoulder tips and neck.

Back

For strapless back and low-cut necklines:

7. HBL = one-fourth of center back length from neck to waist mark, and square across the pattern. Mark centers of each dart at waist and draw lines up to the HBL.

Draw lines from the waist darts to the HBL.

Figure 10a

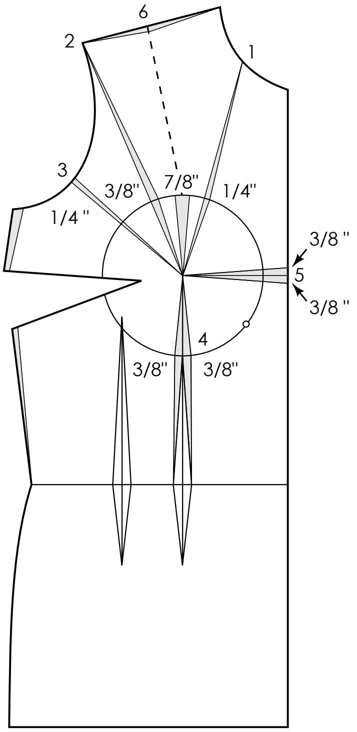


Figure 10b

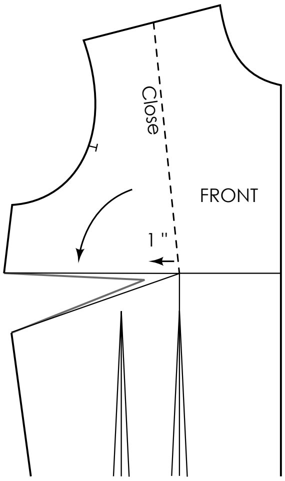
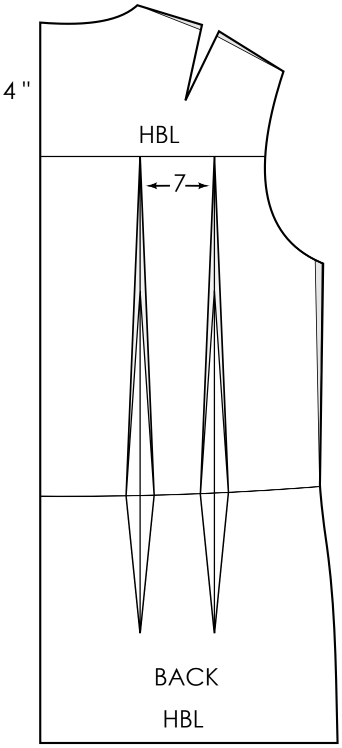


Figure 10c



Decreasing and Increasing Bust Cup

Figures 11a, b

Cut the pattern from center front to bust point, to dart point to side seam. Slash to curve of the armhole. Rise or lower the space using the model's bust cup size while keeping the center front aligned.

Figure 11a

Increasing bust cup

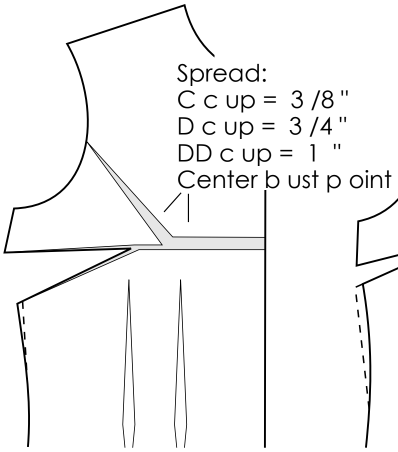
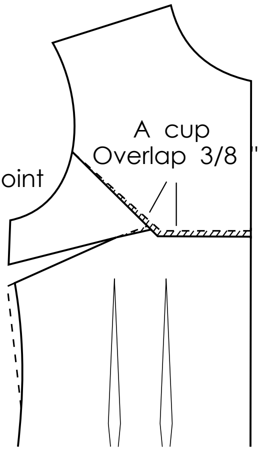


Figure 11b

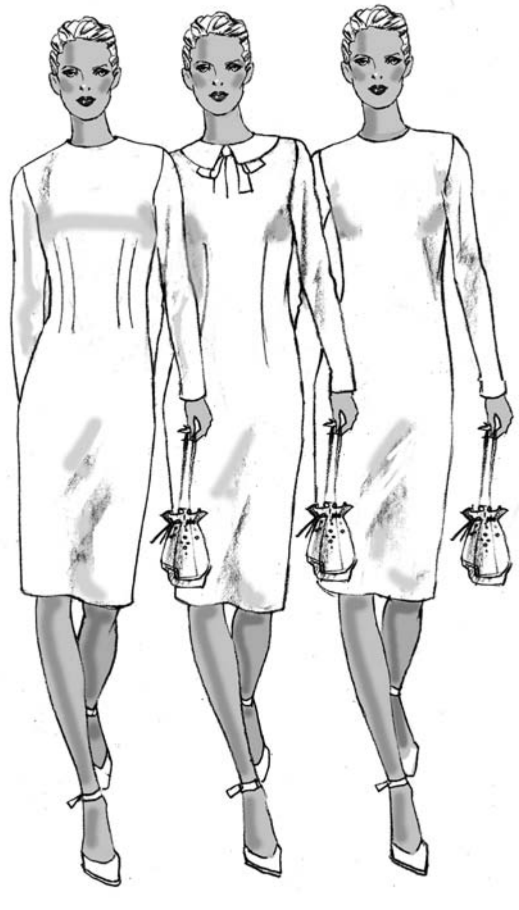
Decreasing bust cup



DRESS CATEGORIES

Dresses may be grouped into two categories—those with a waistline seam and those without (as illustrated). Dresses designed without the waistline seam are based on the torso side dart pattern. Dress foundations such as the fitted sheath, semi-fitted shift, straight-line and A-line silhouettes, princess, panel, empire, tent, torso dress, blouson, and oversized dress are based on the torso pattern.

THE THREE BASIC DRESS FOUNDATIONS



Each of the three basic dresses is based on the torso foundation, with the fit of the garment controlled by the amount of dart control at the waistline.

Sheath. Fitted with a series of double darts

Shift. Semi-fitted with a series of single darts

Box-fit. Elimination of all waist darts and an increase of intake at the side dart

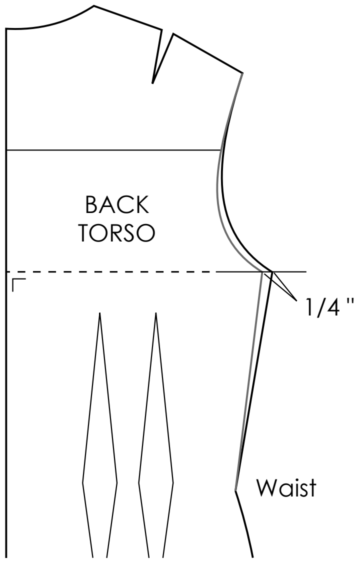
Find designs in fashion magazines and other sources based on these foundations. Creating with the basic dress foundations includes modifying stylelines and increasing or decreasing hemline sweep (changes the silhouette). Collars, sleeves, pockets, and other add-ons bring variety to these very basic foundations.

Modify Back Pattern for Sleeveless Designs

Figure 1

Retain the side seam length as a new side seam is drawn from the waist to 1/4 inch from the armhole. Draw the armhole curve to the shoulder tip with a French curve. Trim to this line when completing the pattern.

Figure 1

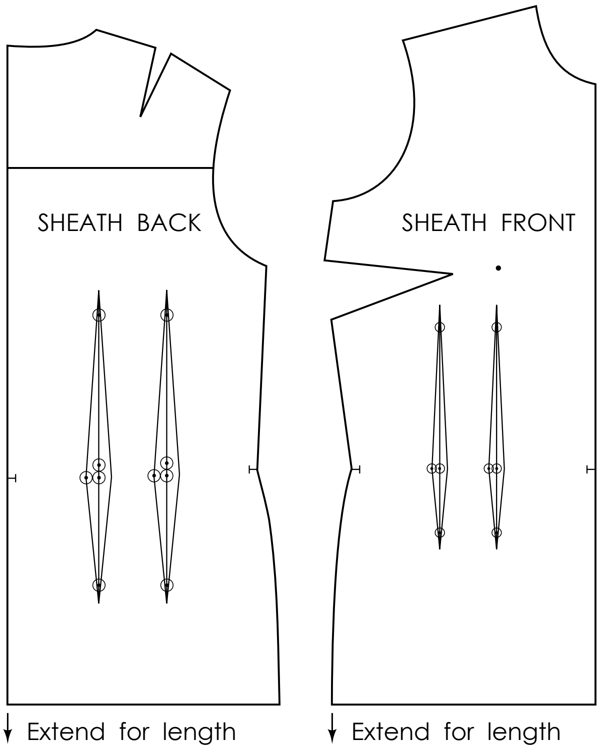


Knit Dress Designs

Garments designed for knits should be based on the dartless knit patterns—Drafts 1 and 2. Other patterns may be used. Patterns that are used for knit designs should be modified to compensate for stretch and shrinkage.

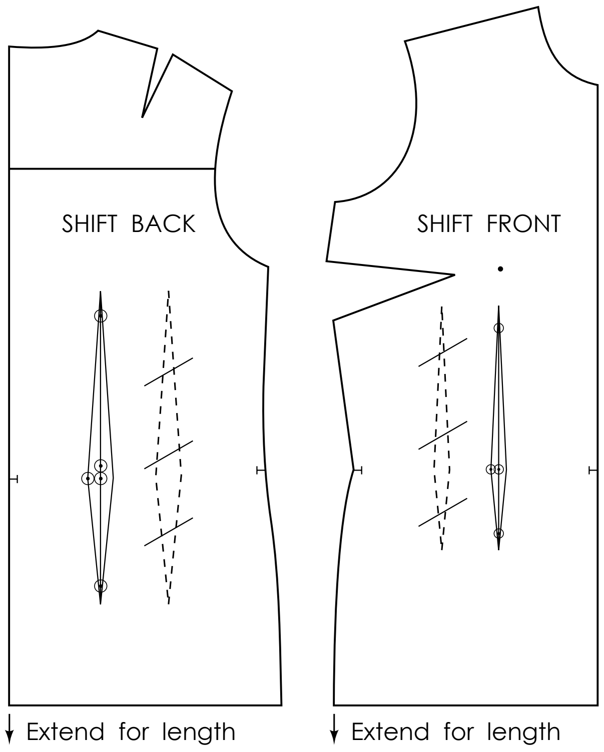
The Sheath (Fitted Silhouette)

Both darts of the front and back torso patterns are marked for stitching.


SHEATH BACK
SHEATH FRONT
Extend for length
Extend for length

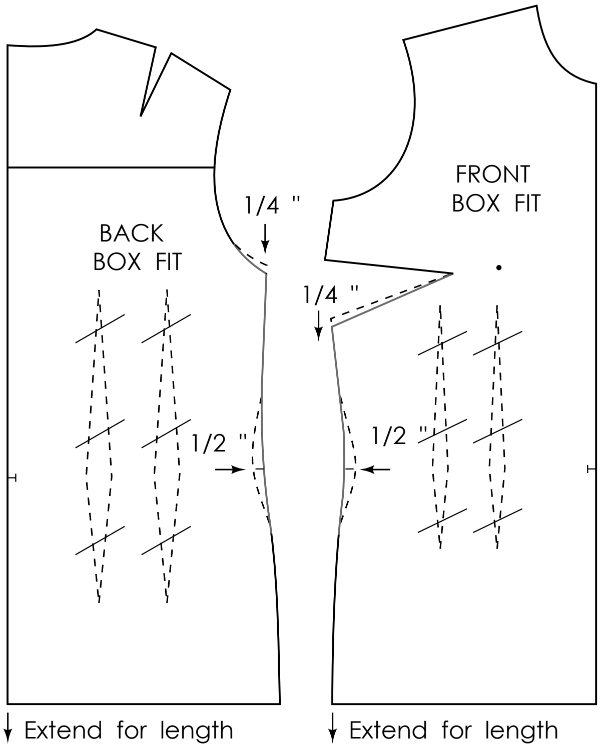
The Shift (Semi-Fitted Silhouette)

One waist dart is marked for stitching and the other dart is left unmarked (broken lines) as ease around the waistline.


SHIFT BACK
SHIFT FRONT
Extend for length
Extend for length

The Box-Fitted Silhouette

Waist darts are left unmarked (broken lines) and unstitched as ease around the waistline.


BACK
BOX FIT
FRONT
BOX FIT
1/4 "
1/4 "
1/2 "
1/2 "
Extend for length
Extend for length

Modify Torso Foundation for the Box Fit

Front

- To prevent the collapse of the side seam, increase the dart intake 1/8 inch. Draw a line to the dart point.

Back

- Lower back armhole 1/8 inch and blend.
- Mark 1/2 inch or more out from the front and back side seams.
- Draw blending lines to the original side seams. (The shortened side seam length will not affect the balance line of the HBL level of the hipline.)

PRINCESS-LINE FOUNDATION

The princess-line foundation is the base for developing designs with similar styleline features.

Pattern Plot and Manipulation

Figures 1, 2

- Trace the front and back torso foundations. With push pins, transfer the waist darts to the pattern underneath.

Back Styleline

- Draw princess styleline with a skirt curve from leg of the shoulder dart to dart point of the first waist dart and from bottom of the dart point to hip level, parallel with center back.
- Move shoulder dart point to the styleline. Draw the dart leg.

Front Styleline

- Draw the styleline in line with back shoulder dart to the bust point and from bottom of the dart point to hip level, parallel with center front.
- Draw a slash line from bust point to the side dart point. Crossmark 3/4 inch from bust point for the pivotal point.
- Mark notches 1 1/2 to 2 inches up and down from bust point on the styleline.

Figure 1

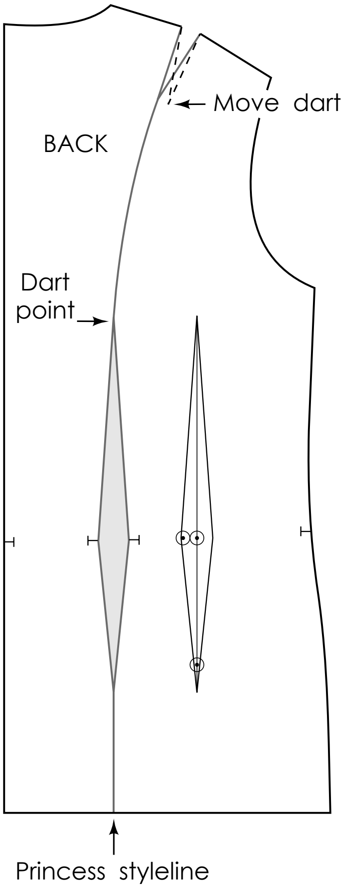


Figure 2

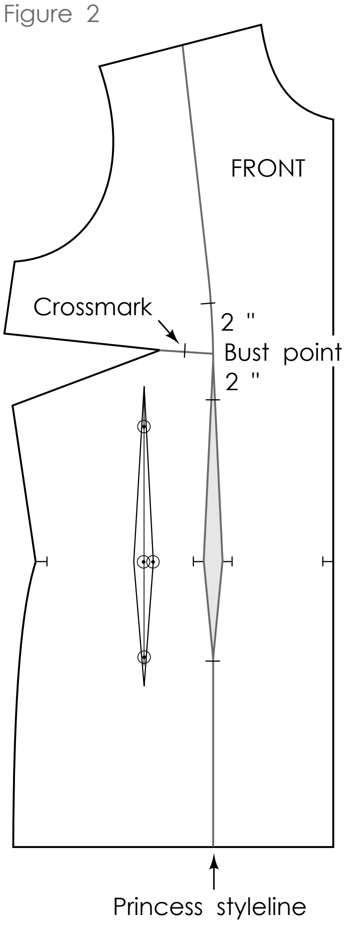


Figure 3

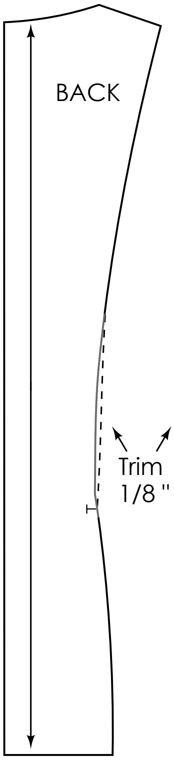


Figure 4

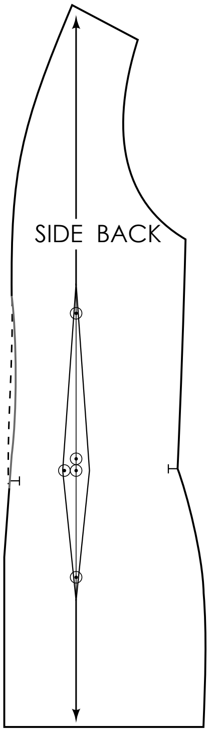


Figure 5

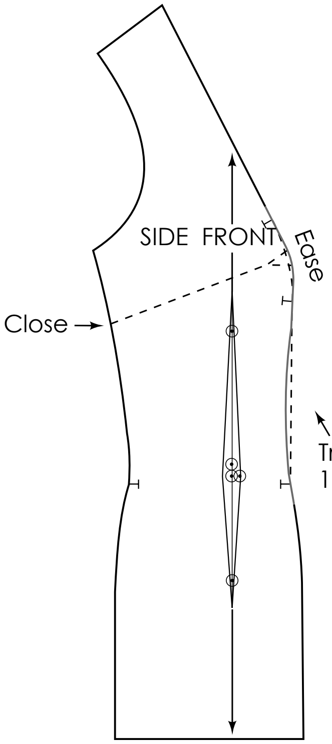
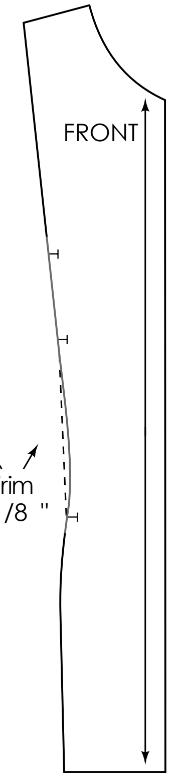


Figure 6



Figures 3, 4, 5, 6

- Cut and separate styleline on each side of the dart legs.
- Cut a slash line from bust point and dart point to, not through, the crossmark.
- Close the side dart legs. Tape.
- Retrace the princess panel.
- Shape and blend styleline. (Broken line indicates the original pattern.) Circle punch holes.

Complete the princess-line dress foundation as illustrated. Several designs are given using the princess line as a foundation pattern.

Stylized Princess with Bloused Hem

Design Analysis

Design 1 is a fitted, stylized princess-line dress with a bloused hemline. The design is based on the sheath foundation pattern two pages back. Design 1 is illustrated.

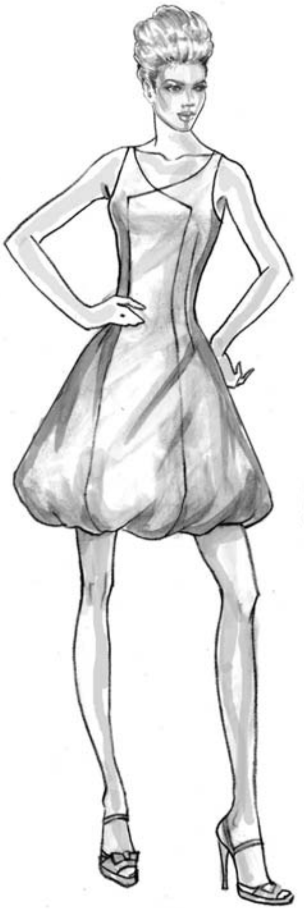
Plan the following:

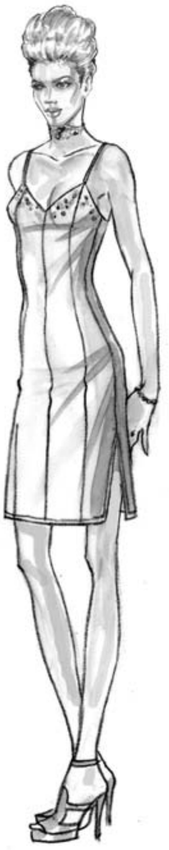
- The finished dress length, as desired.
- Allowance for blousing = 3"
- Length of the lining
- Allowance for gathers

Use the lining hem as the base:
2-to-1 ratio is an average, but may be more or less depending on the weight of the fabric.

Example: 36" hem circumference, add 3" to each side of the panels, as shown

Design 1





Design 2

Figure 1

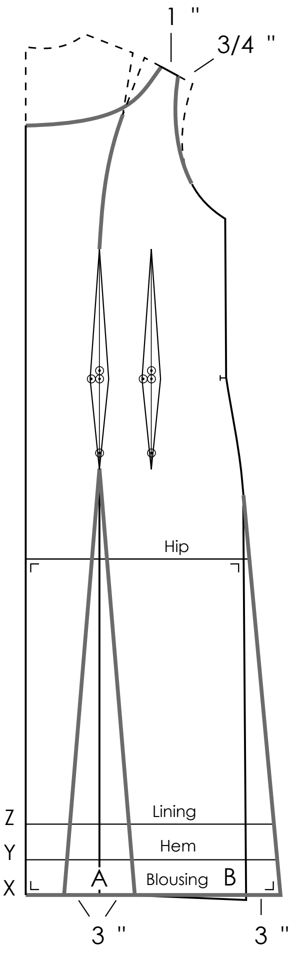
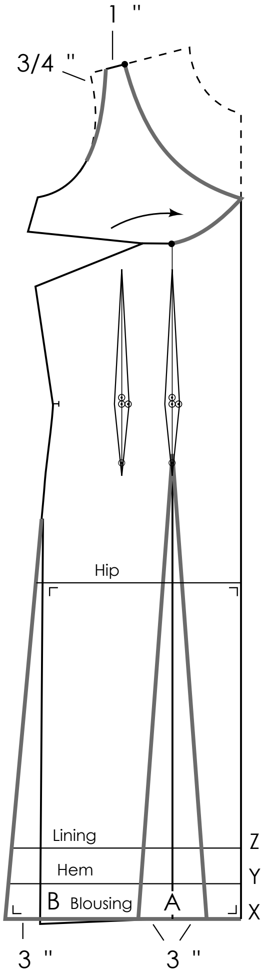


Figure 2



Pattern Plot and Manipulation

Figures 1, 2

- Trace the back and front patterns. Transfer long darts to the paper underneath with a pushpin. Remove the patterns. Pencil in the waist darts.
- Plot the front and back neckline, as illustrated.
- Square down from hip levels to finished length (X). Mark 3" up from X for blousing (Y).
- Y – Z = XY (lining hem). Mark. Square across at X, Y, and Z.
- Draw princess lines through dart points to hem. Label A and B at the side seams.
- Mark 3 or more inches out from each side at A and connect to the dart points of the princess line. Mark 3 inches or more out from B and connect to the outermost part of the hipline curve.
- Square in from the side at hemline and blend.

Figure 3 Interfacing Patterns

- Cut the patterns from the paper.
- Before separating the princess panels, trace neck and armhole for the interfacing patterns.

Figure 3

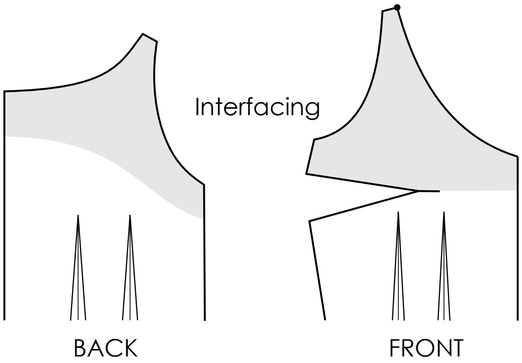

Interfacing
BACK
FRONT

Figure 4

Princess dress panels: Trace each princess panel with its flare (white patterns). Include the marking for the lining part of the panel (broken lines) for use as a guide when tracing the lining patterns.

Side front panel: Close side dart.

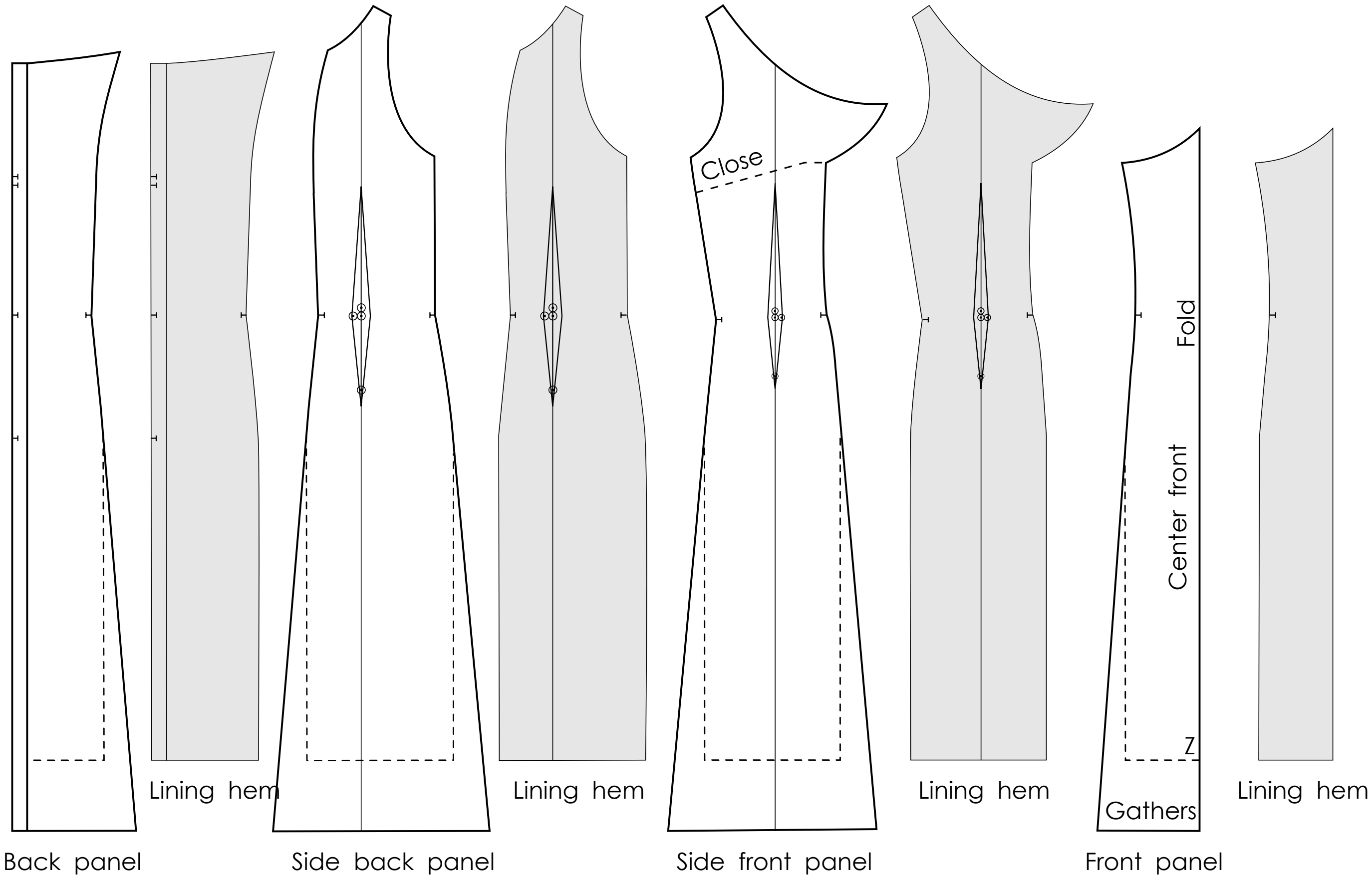
Lining panels: The lining panels do not include added flare (shaded patterns). The pattern is traced from the dress panels.

Trim 1/8" lining from shoulder at armhole and at neckline.

Place 2 pieces of paper underneath the panel being traced. Mark the lining part on each pattern and cut it out for separate panels. Add 1/2" to all seams and 1/4" at the neckline.

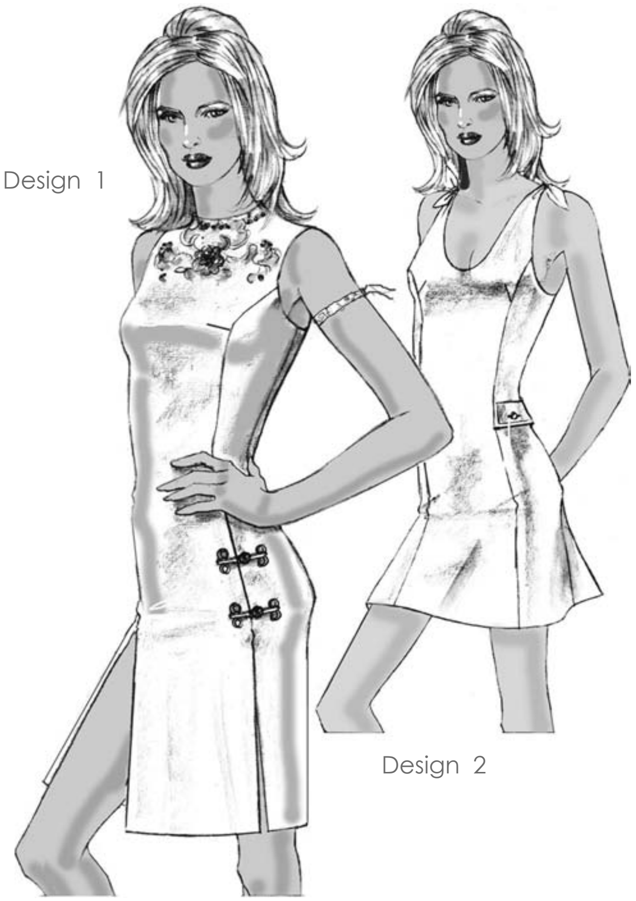
Sewing guide. Gather the hemline and stitch to the lining with right sides facing. A filler can be placed around the blousing (netting).

Figure 4


Close
Fold
Center front
Z
Gathers
Lining hem
Lining hem
Lining hem
Lining hem
Back panel
Side back panel
Side front panel
Front panel

PANEL DRESS FOUNDATION

The torso panel is a semi-fitted foundation without side seams. Designs 1 and 2 are based on this foundation. With imagination, many other variations can be created.



Pattern Plot and Manipulation

Figures 1, 2

- Trace the front and back torso foundation.
- Square a styleline up from hip level 1/2 inch from the armhole. Draw a blended curve to the styleline. (Broken line indicates original darts.)
- Reposition darts to the stylelines. Use intake from one dart, plus one-half of the other. Divide equally on each side of the styleline at front and back waist.
- Draw new dart legs (shaded area).
- Draw a slash line 1 inch below the original location of the side dart, ending at dart point.
- Cut and separate pattern panels along the styleline, discarding unneeded section (shaded area between dart legs).

Figure 1

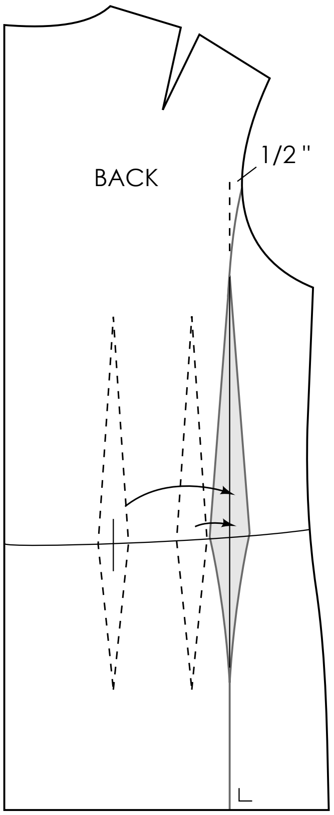
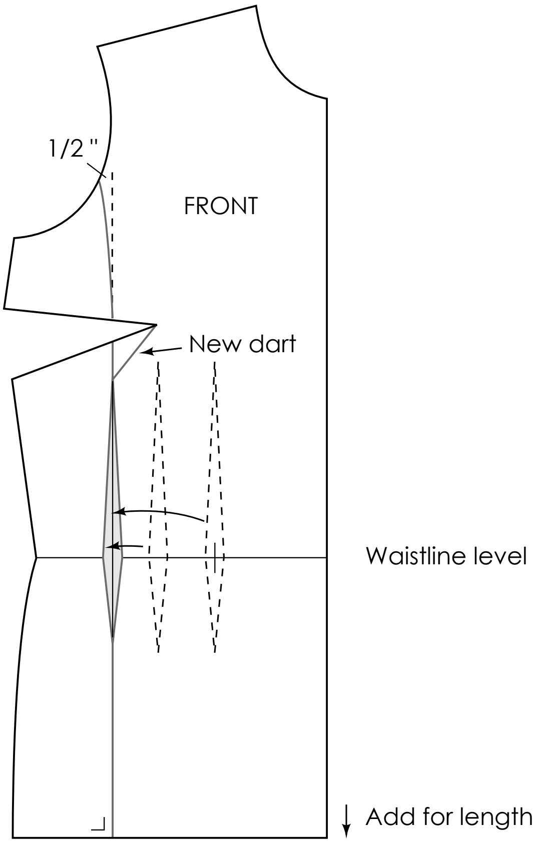


Figure 2



Figures 3, 4 Front and Back Panels

- Cut slash line for new dart. Close dart. Tape.
- Add 1-inch extension at center back.
- Draw the grainline and mark notch.
- Trim the styleline as shown.

Figure 3

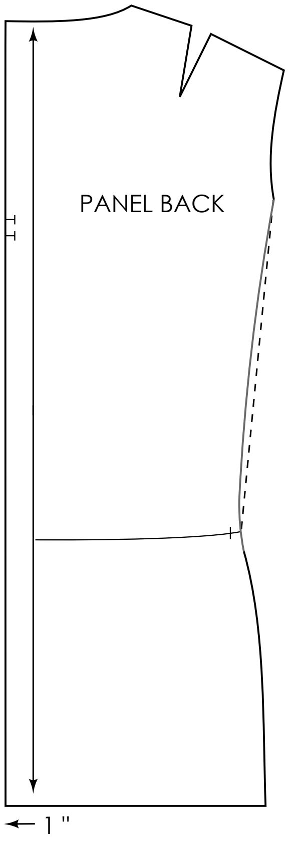
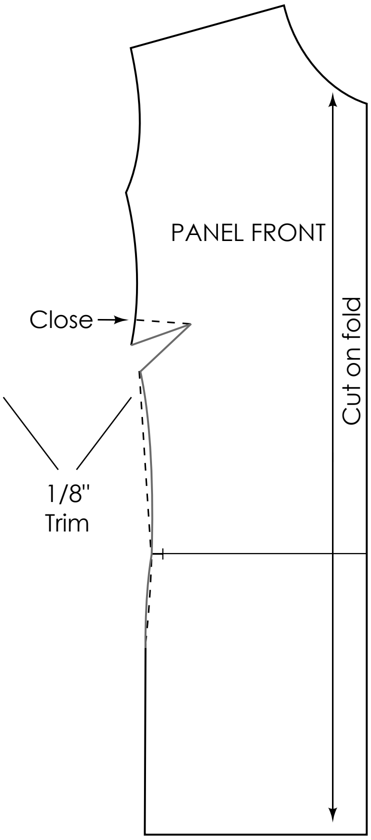


Figure 4



Figures 5, 6 Side Panels

- Close the side dart legs of the side panel.
- On paper, draw a horizontal guideline and square a line up. Label A, B, and C.
- Place the hip of the front and back panels on the horizontal line and the corners of the armholes touching line A. (The hips may touch, overlap, or have space between them, and the armholes may not be at the same level.) Trace and remove patterns.

Figure 5

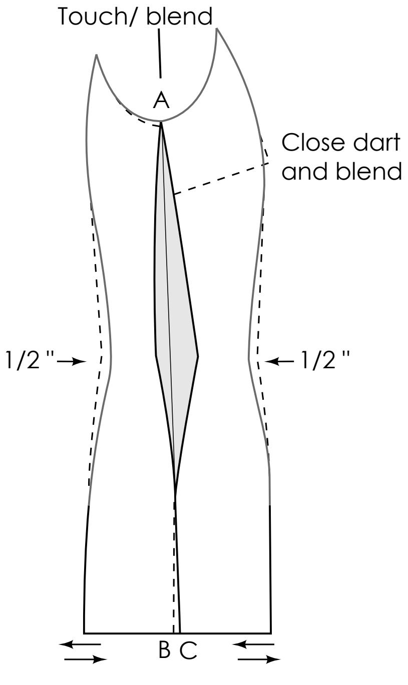
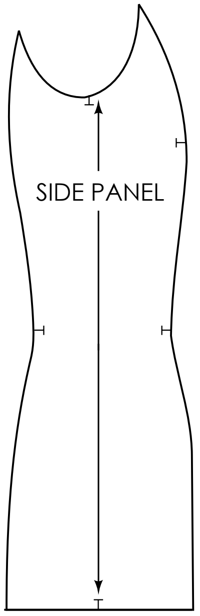


Figure 6



Adjust Panels

Armhole: Equalize the difference so that both armholes will meet.

- Mark 1/2 inch in at the waistline. (Disregard instructions if side hips meet.)

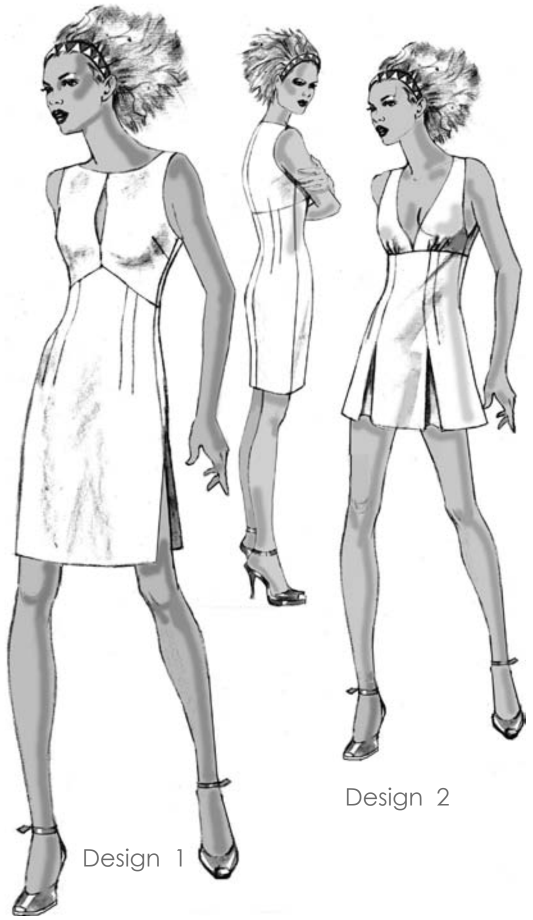
Hips That Overlap or Have Space Between Them

- Measure the amount. Add or subtract one-half the amount on each side of the panels.
- Mark and square up about 2 inches.
- Draw panel stylelines slightly inward above waist and slightly outward below waist. Blend where noted (original shape indicated by broken lines).
- The completed panel is shown in Figure 6.

EMPIRE FOUNDATION

The empire foundation is developed from the basic torso and should include all contour guidelines. Use as the base to develop Designs 1 and 2.

The styleline of the empire dress crosses under the bust and across the back (optional). A single dart above the styleline and a pair of darts below the styleline control the contour fit.



Design 1

Design 2

Pattern Plot and Manipulation

Figure 1 Front Torso

For those not using the contour guide pattern, follow the plot and measurements given.

- Trace front torso. Mark bust point. Draw darts and bust circle (3-inch radius). With push pin, transfer guideline 4 (under bust) or use measurement given.
- Draw a line from side dart point to bust point.

Empire Styleline

- Square a line from center front, touching circle under the bust to side seam. Label A (broken line).
- Mark B 3/4 inch down from A.
- Draw a curved line from B to under the bust. Excess of the second dart above the styleline is for ease.
- Label C at side waist.

Lower Section

- Measure out 3/16 inch from each side of the dart leg at the styleline and connect to waist (shaded area).

Figure 1

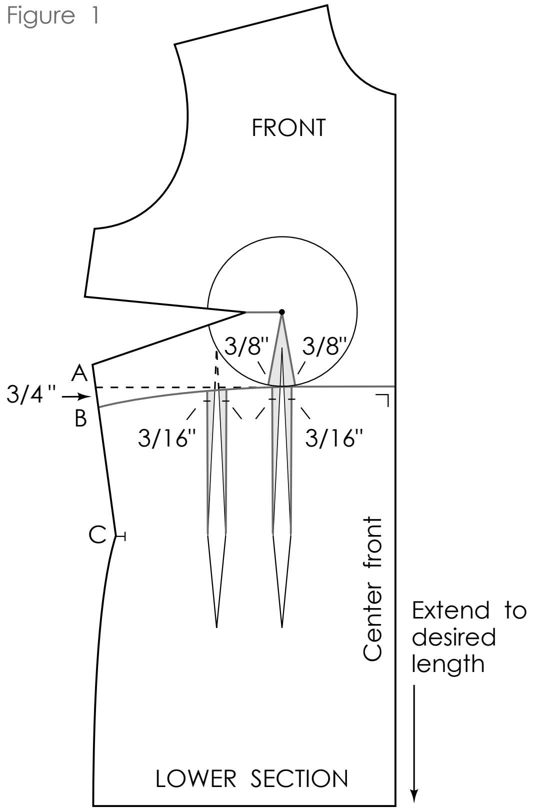


Figure 2 Back Torso

- Trace back torso. Label side waist D and center back F.

Empire Styleline

D–E = C–B (of the front, previous page).

F–G = D–E, less 1/2 inch. Square a short line.

- Draw curved styleline from E, blending with G.
- Mark the center for new dart between existing darts and draw a line to the HBL, parallel with center back.
- Crossmark 3 inches up from the styleline.
- Draw dart legs equal to the dart intake.

Lower Section

- Mark 1/8 inch out from each dart leg (shaded area).
- Draw new dart legs, ending at waist.

Figures 3, 4

- Separate patterns along stylelines.

Front

- Cut slash lines to bust point and close side dart. Retrace pattern.
- Extend dart legs 1/4 inch below the bust and down 1/8 inch at center front (square a short line). Blend lines and shape dart legs. (For gathering under the bust and back, draw blending lines across darts—broken lines.)

Matching Seams

- Walk the upper and lower torso patterns. If front does not match (excluding 1/8-inch ease), adjust the pattern by increasing or decreasing the bust dart intake. Adjust the dart leg nearest to the side seam. If the back does not match, subtract from side seam of the back upper torso. Blend to zero at the armhole (broken line).
- Use the basic sleeve to complete the pattern.

Contour Guidelines

Mark all contour guidelines for future reference. Complete the pattern for a test fit. For sleeveless designs, modify the back pattern; see The Three Basic Dress Foundations Section, Figure 1, earlier in this chapter.

Figure 2

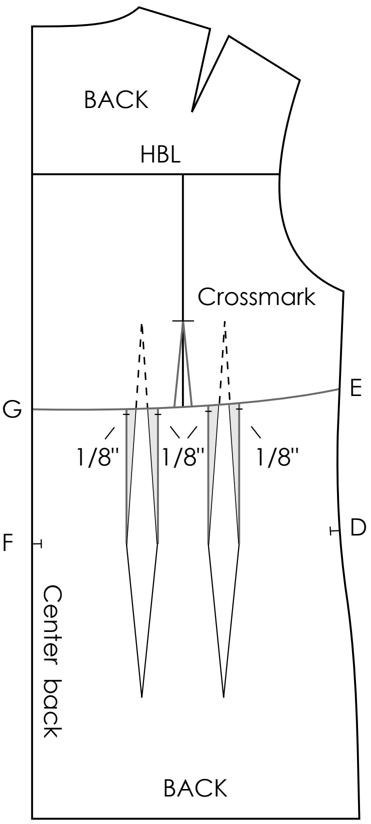


Figure 3

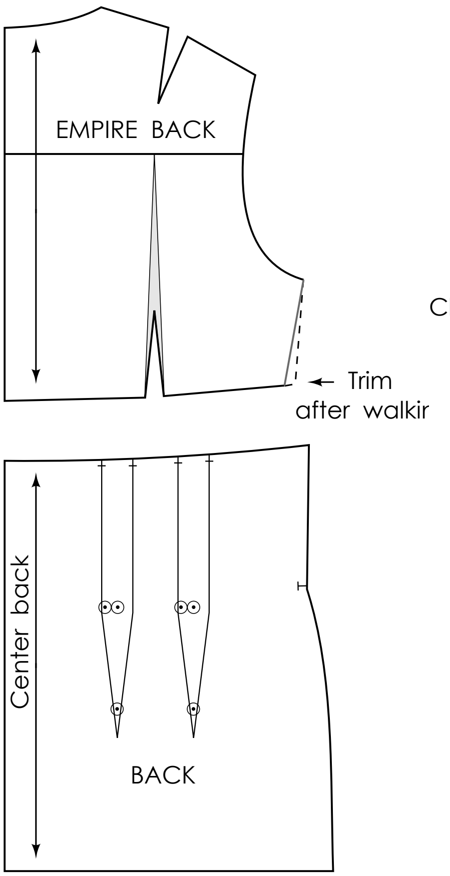
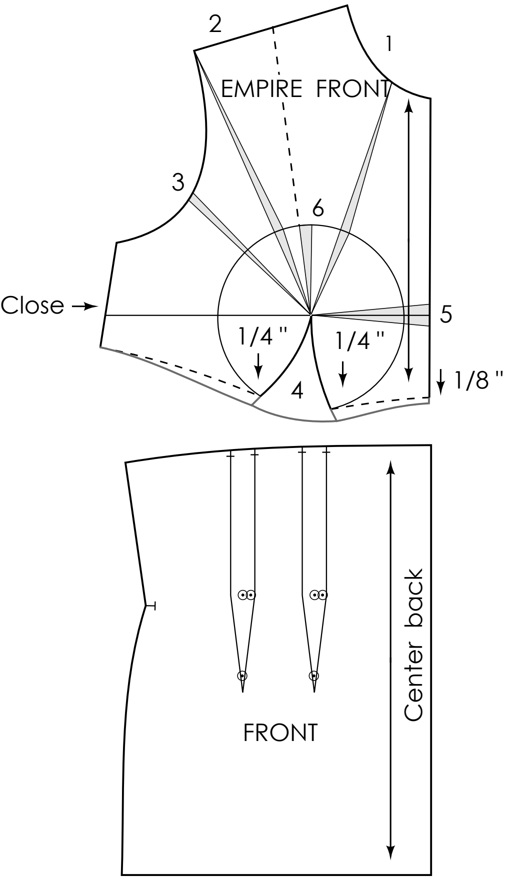


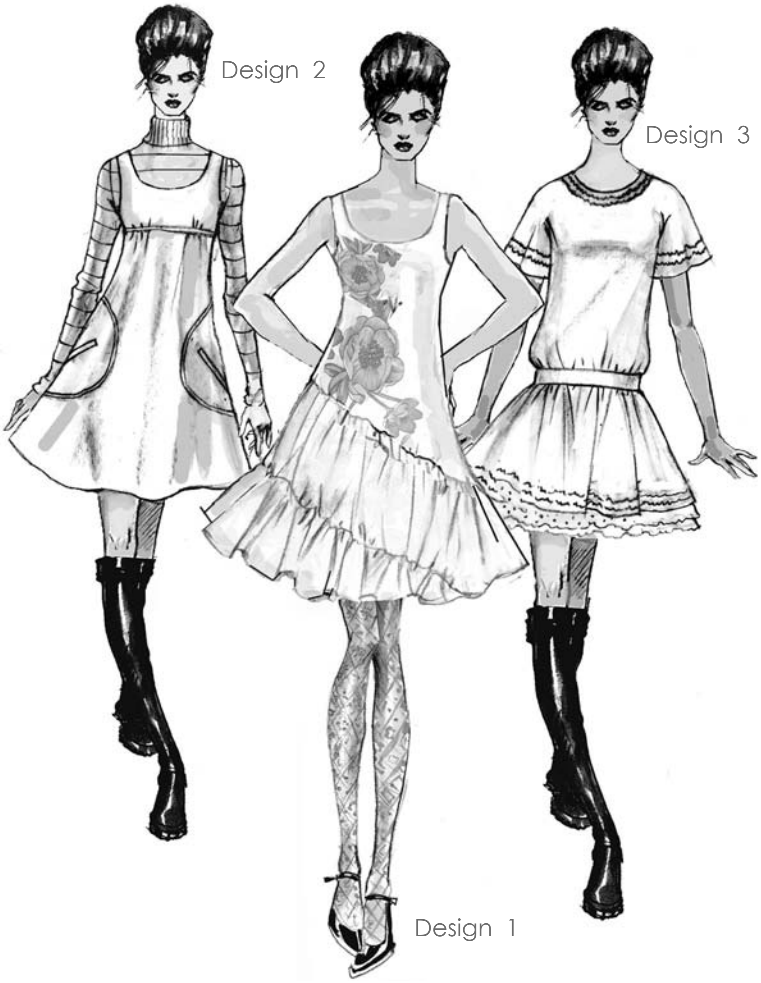
Figure 4



TENT FOUNDATION

The tent silhouette has a sweeping hemline created by transferring the dart excess from the front (side dart and back shoulder dart) to the hem. To decrease the hemline sweep, transfer less excess to the hemline, leaving some excess for a side dart.

The foundation can be the base for many designs.


Design 2
Design 3
Design 1

Pattern Plot and Manipulation

Figures 1, 2

- Trace front and back torso; omit waist darts.
- Extend to desired length by squaring down from the hipline (HBL).
- Draw a slash line as shown.
- Label the hipline A, B, C.

Figure 1

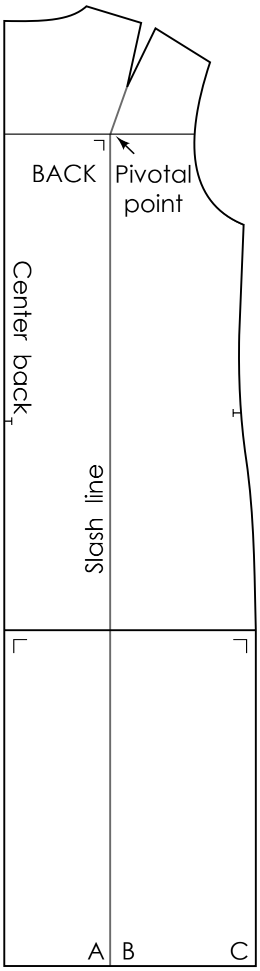

BACK
Pivotal point
Center back
Slash line
A
B
C

Figure 2

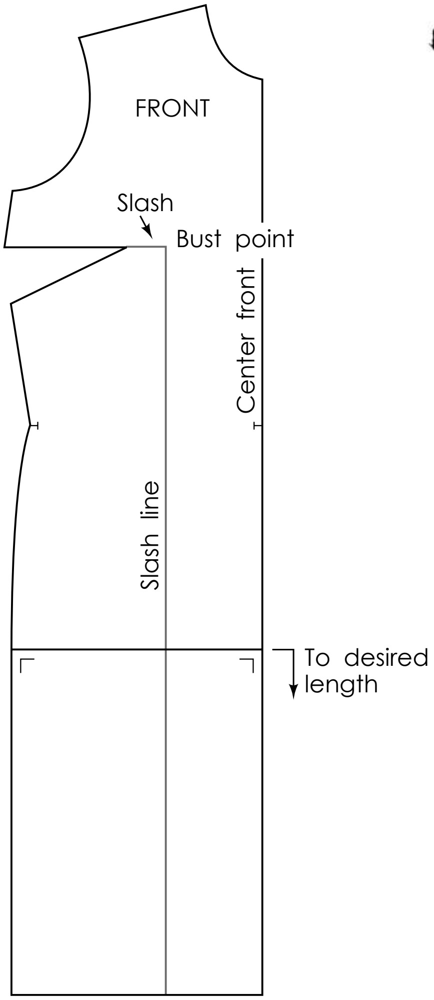

FRONT
Slash
Bust point
Center front
Slash line
To desired length

Figure 3 Back

- Cut a slash line from the hem to, not through, the shoulder dart point. Close the dart.
- Place on the paper and trace. Blend the hemline.
- C to D equals A to B. Mark.
- Mark E 1/2 inch at mid-point between armhole and waist.
- Draw a line from the armhole to E and from E to D. Blend the hemline.
- Blend a curved line at point E.

Figure 4 Front

- Cut slash lines from the hem and side dart point to, not through, the bust point.
- Close the side dart.
- Place on paper and trace.
- F to G equals half of C to D. Mark.
- Mark H 1/2 inch in from the mid-point between the armhole and waist.
- Draw a line from the armhole to H and from H to G.
- Blend the hemline.
- Blend a curved line at point H.

Equalizing Hemline

The front hemline sweep is greater than the back hemline. The difference is due to the amount of dart excess that has been transferred to the hem. This does not create an A-line silhouette until additional width is added to the side seams. Test fit. If the silhouette (side seam) fits too close or too loose at points E and H, adjust. If the side seam flare is too great or not enough, repin and correct the patterns.

Figure 3

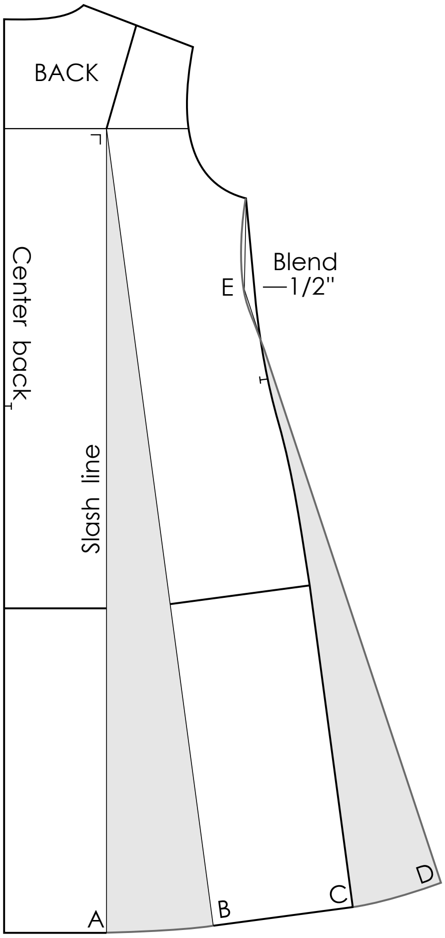
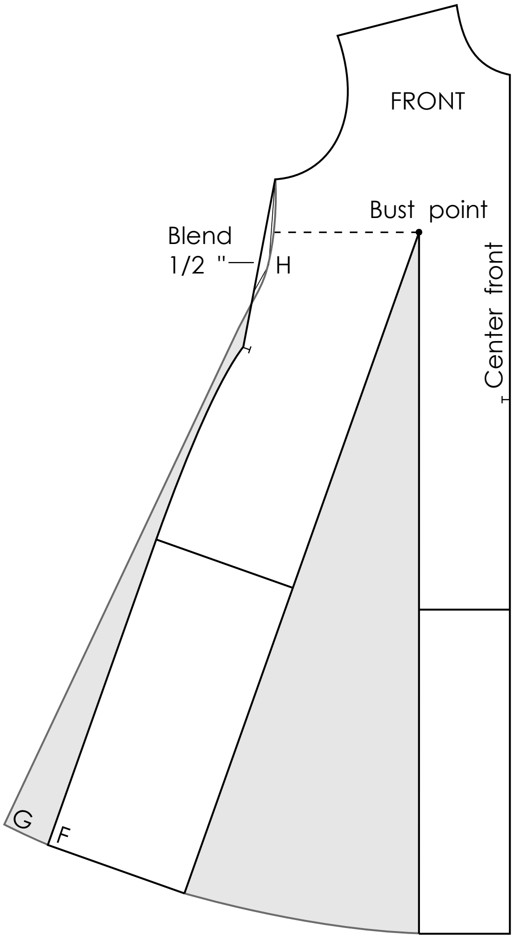


Figure 4



SPECIAL PATTERNMAKING PROBLEMS

The following examples illustrate plot and pattern development for designs featuring creative detailing crossing through darted areas of the pattern. Design 1 has gathers and Design 2 (next page) has stylelines crossing the darted areas. Designs 3 and 4 (two pages ahead) feature stylelines that require a one-piece front. The examples do not represent completed patterns but should be used as guides for plotting patterns with similar features. To complete the designs, and for practice, plot the back patterns with appropriate stylelines for each of the designs.

Design 1

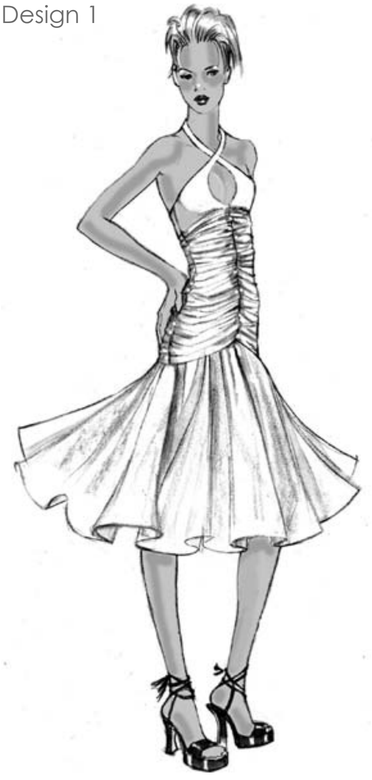
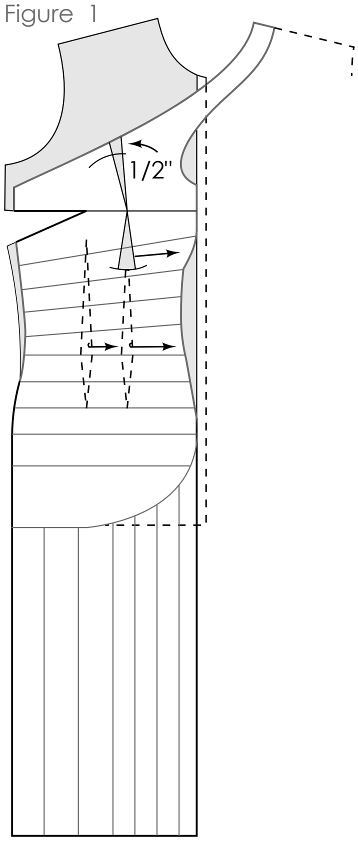


Figure 1



Gathers Crossing Dart Areas

For a more exaggerated cut-out, follow the sketch.

Figure 1 Plot the Torso Pattern

- Remove 1/2 inch from the center front to compensate for bias stretch. (If garment is still loose at time of fitting, remove more from the gathered area.)
- Eliminate the waist dart excess at the center front by drawing the width and length of both darts (shaded area).
- For under-bust contouring, remove an additional 3/4 inch at the center front (at level with the bust circumference).
- When the pattern is cut from paper, the unneeded section is trimmed from the pattern (shaded areas).

Figures 2, 3 Completed Pattern

- The pattern is slashed, spread, retraced, and blended.

Figure 2

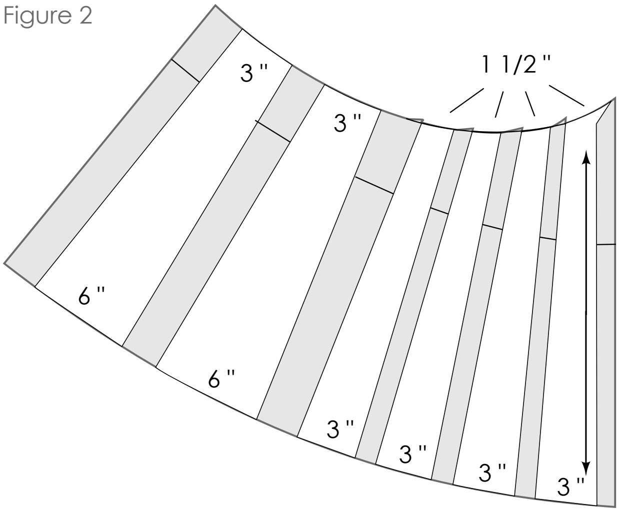
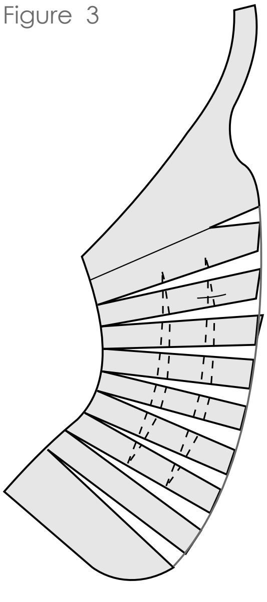


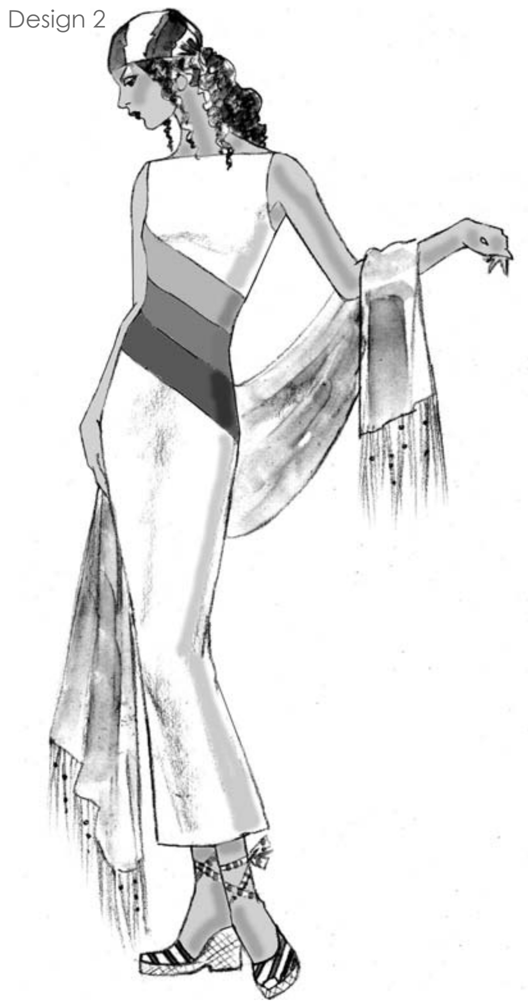
Figure 3



Stylelines Crossing Dart Areas

Figure 1

- Draw stylelines across the open darts as indicated by the design.
- Number each section.



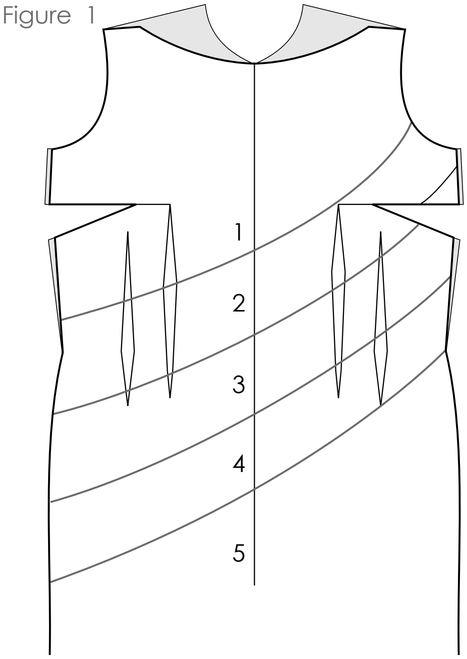


Figure 1
1
2
3
4
5

Figure 2 Completed Pattern

- For bust contouring, increase the dart intake under the bust, as illustrated.
- Separate patterns along the stylelines.
- Close all darts.

Stylelines that cross open darts at an angle will not true when darts are closed. Adjust by blending after the panels are traced.

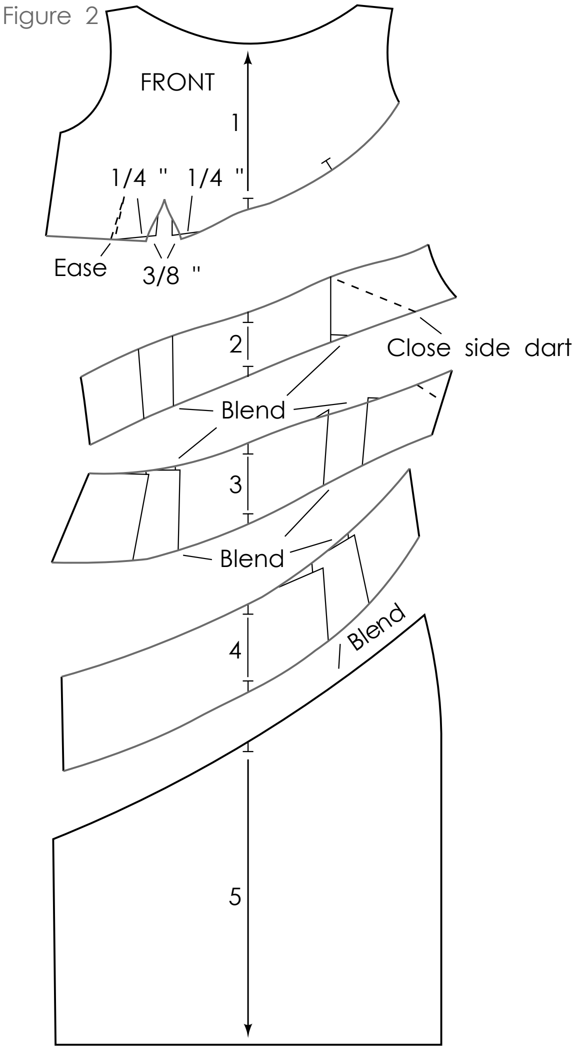


Figure 2
FRONT
1
1/4 "
1/4 "
Ease
3/8 "
2
Close side dart
Blend
3
Blend
4
Blend
5

Stylized One-Piece Front

Designs 3 and 4 illustrate garments created as one-piece fronts without side darts. To plot working patterns for such designs, the styleline ends at the bust point or the dart point of the side dart. After the styleline is cut and the side dart is closed, the pattern opens, allowing space between the stylelines to complete the details of the design (such as flare, Design 3, and pleats, Design 4). This would not be possible if the side dart remained as a dart. Develop the pattern for Design 4 for practice. Design other variations using this concept.

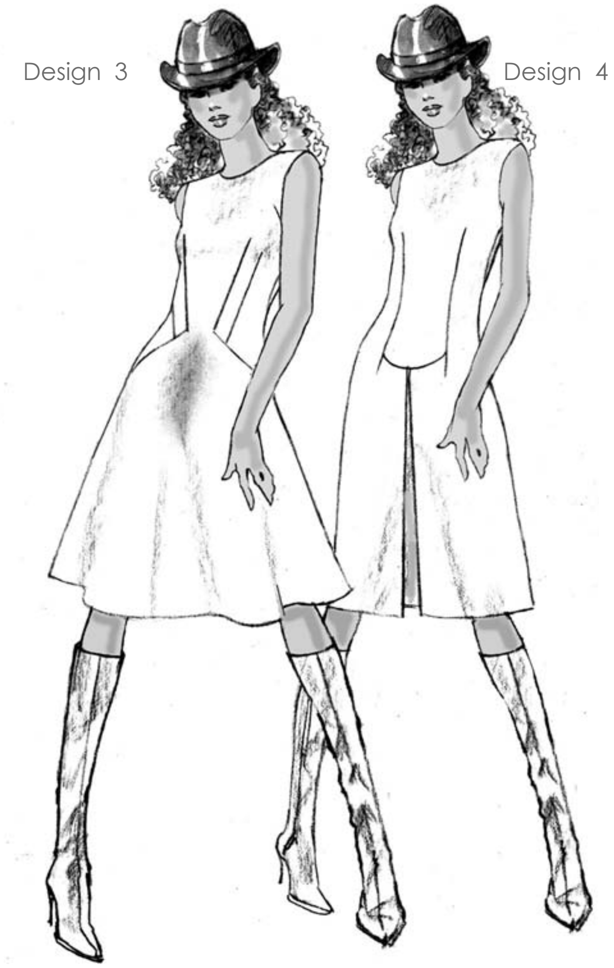

Design 3
Design 4

Figure 1
- Draw the styleline to bust point.
- Draw all other stylelines. (Relocate waist darts as indicated by the design.)

Figure 2 Completed Pattern
- After the side dart is closed, complete the remaining pattern.

Allow space for seam allowances (1/4 inch can jog to 1/2 inch) where needed.

Figure 1

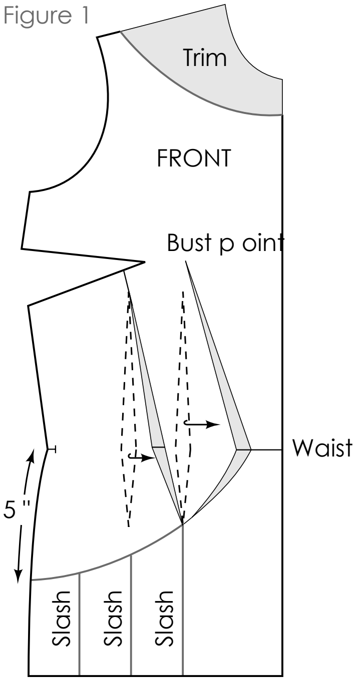
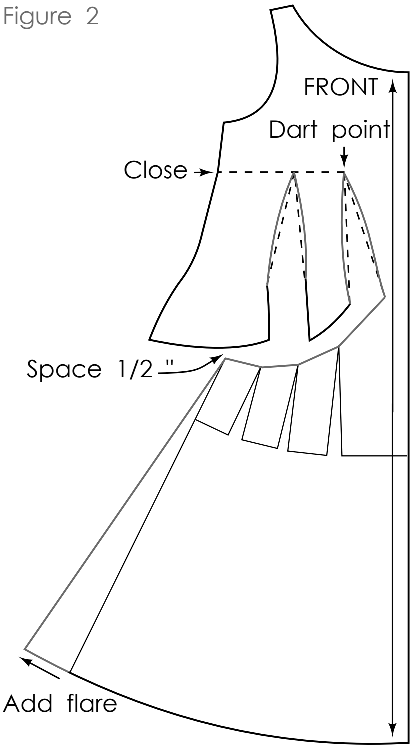

Trim
FRONT
Bust p oint
Waist
5 "
Slash
Slash
Slash

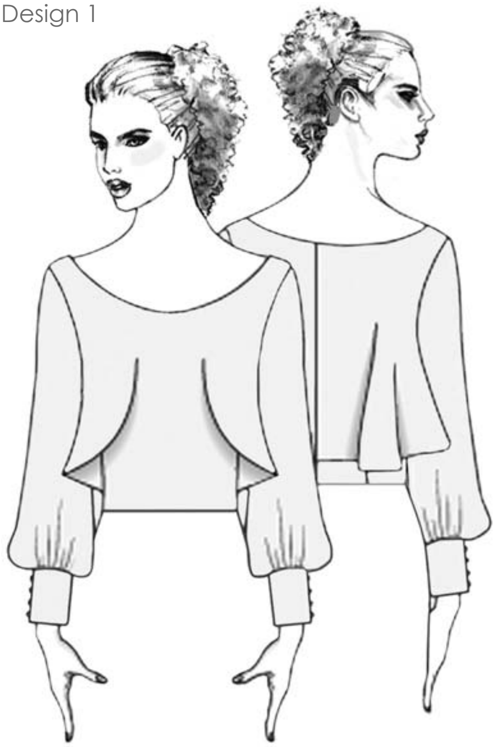
Figure 2


FRONT
Dart point
Close
Space 1/2 "
Add flare

THE ULTIMATE TESTS

The ultimate tests are for those who have learned and understood the three major patternmaking principles and techniques. Through design analysis, a knowledgeable patternmaker knows where and how to apply the principles and techniques to create the pattern shapes for Designs 1 and 2. Part of the challenge is to figure out the pattern shape(s) concealed under the design's overlay. Design 1 has a bishop sleeve, Design 2 is a one-piece garment and the raw seams have binding. Think through each step, and if you are not successful, try again before seeking the answers at the end of the chapter. You will learn more if you solve the design patterns yourself.

Design 1



Design 1 Design Analysis

Where are the darts? ____________________

How are the darts used? ____________________

If you were to add fullness, where would you add it?

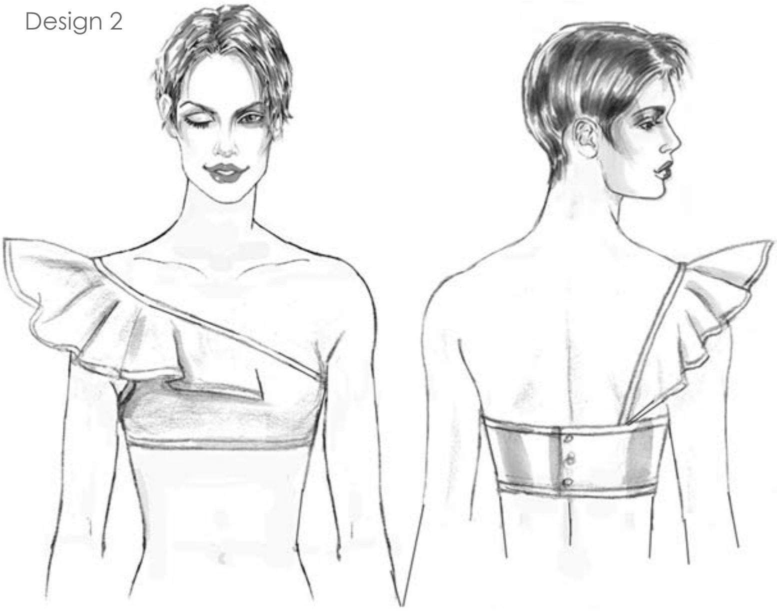
____

Clue: Bolero effect swings free, with center back entry.

Other comments: ____________________

____

Design 2



Design 2 Design Analysis

Where are the darts? ____________________

How are the darts used? ____________________

If you were to add fullness, where would you add it?

____

If you were to apply contouring, where would you apply it? ____________________

Clue: A tack, a dart, overlay and an underlay.

Other comments: You found me!

____

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

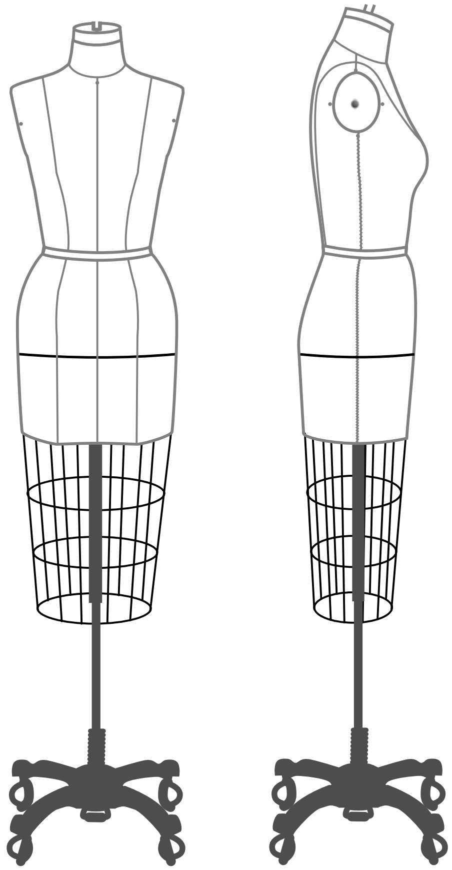
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

*Measuring the Arm

Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

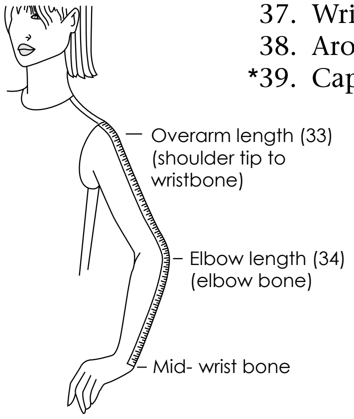
Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

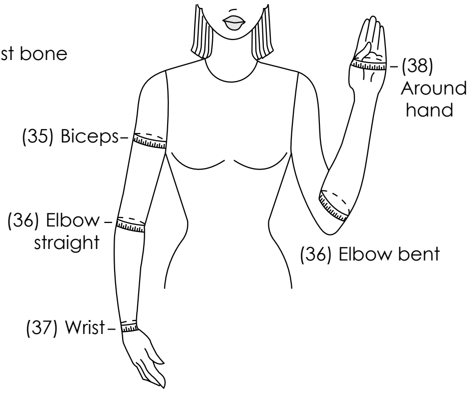
Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____

Length


Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone

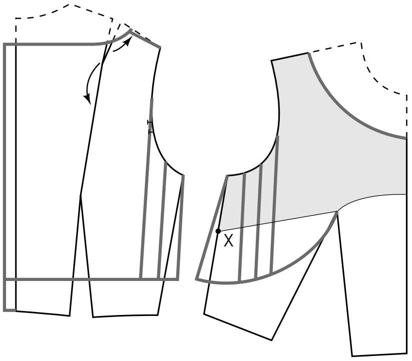
Circumference



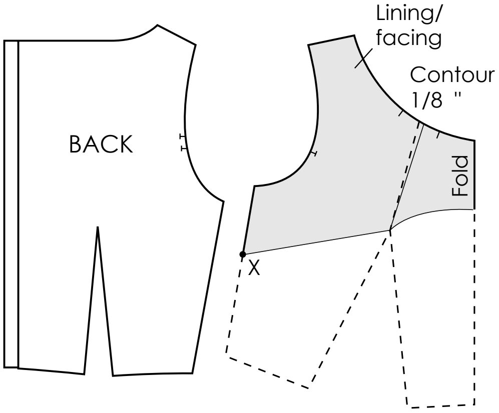
ANSWERS TO SELF-EVALUATION TESTS

Solution to Design 1 for section The Ultimate Tests.

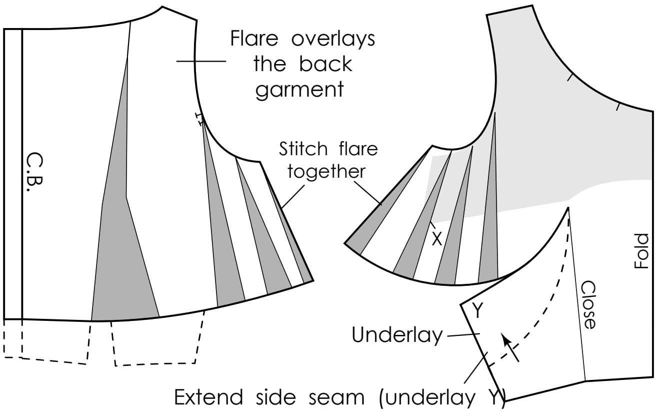
Step 1 - Trace patterns, plot style and slash lines. Mark 3 " below armhole (X). Draw facing (shaded area).



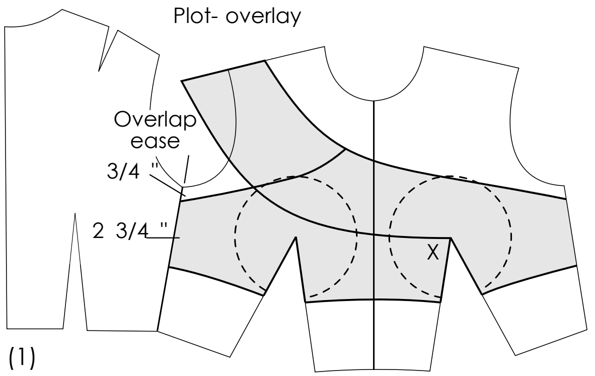
Step 2 - Cut out the necklines and trace facing from center front to bust, ending at X (shaded area). Trace the back pattern for the garment's underlay.


Lining/
facing
Contour
1/8 "
BACK
Fold
X

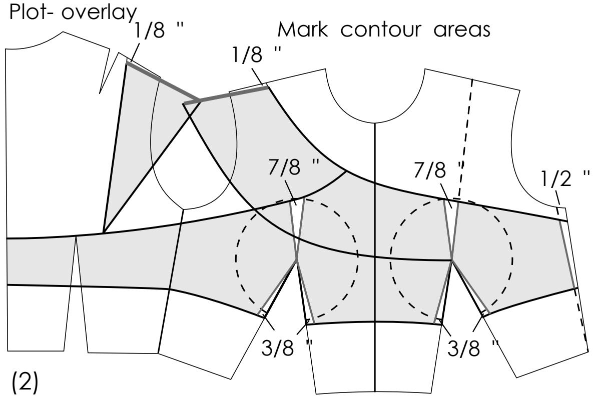
Step 3 - Close waist and dart neck excess. Trace and extend side seam so that when added to X length, it should equal the true side seam. X and Y seams are stitched, then stitched to back side seam. Shaded area shows facing underneath. The broken lines indicates the back underlay.


Flare overlays
the back
garment
C.B.
Stitch flare
together
X
Fold
Close
Y
Underlay
Extend side seam (underlay Y)

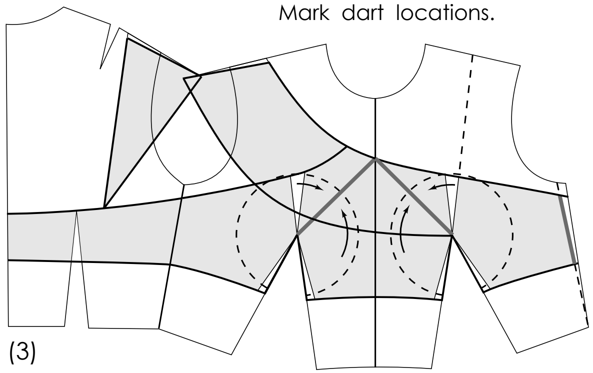
Answer for Design 2, for section The Ultimate Tests.


Plot- overlay
Overlap ease
3/4 "
2 3/4 "
X

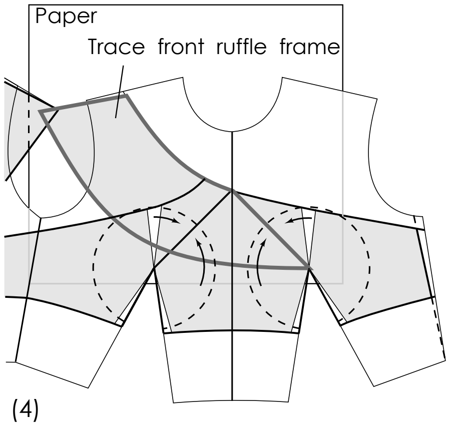
(1)


Plot- overlay
1/8 "
Mark contour areas
1/8 "
7/8 "
7/8 "
1/2 "
3/8 "
3/8 "

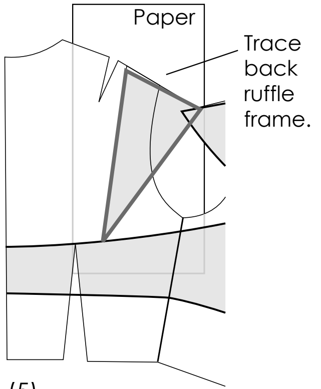
(2)


Mark dart locations.

(3)

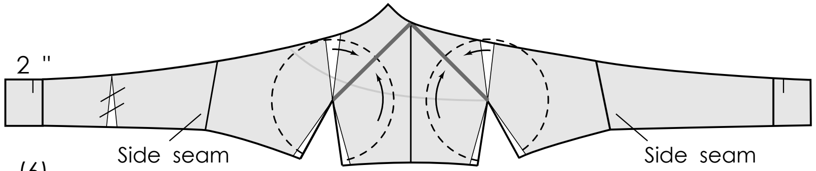

Paper
Trace front ruffle frame

(4)


Paper
Trace back ruffle frame.

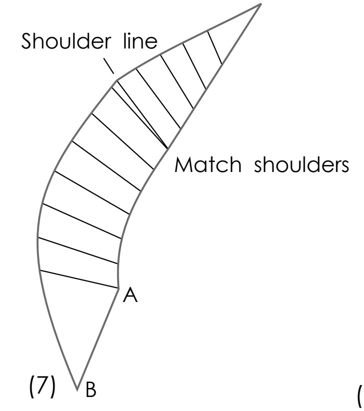
(5)

Remove unessential pattern parts. Transfer excess from above and below the bust point to its new location at center front. Make a copy of the back strap and place it on the left side or make a mirror image by folding the pattern at center front. Add extension for button and button hole.

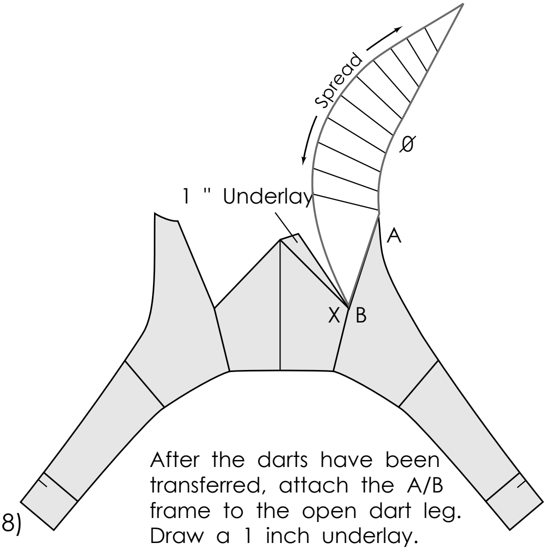

2 "
Side seam
Side seam

(6)

Ruffle frame combined


Shoulder line
Match shoulders
A
B

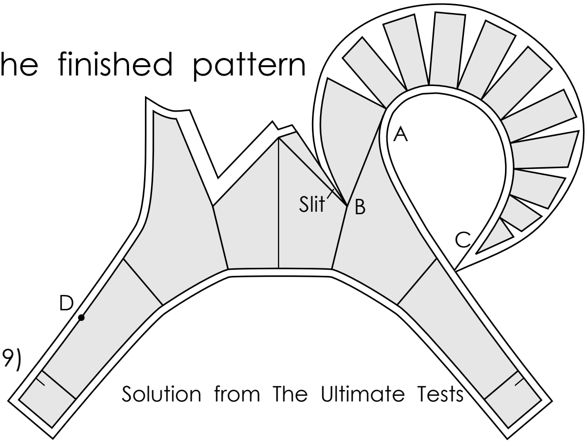
(7)


Spread
0
1 " Underlay
A
X
B

After the darts have been transferred, attach the A/B frame to the open dart leg. Draw a 1 inch underlay.

(8)

The finished pattern



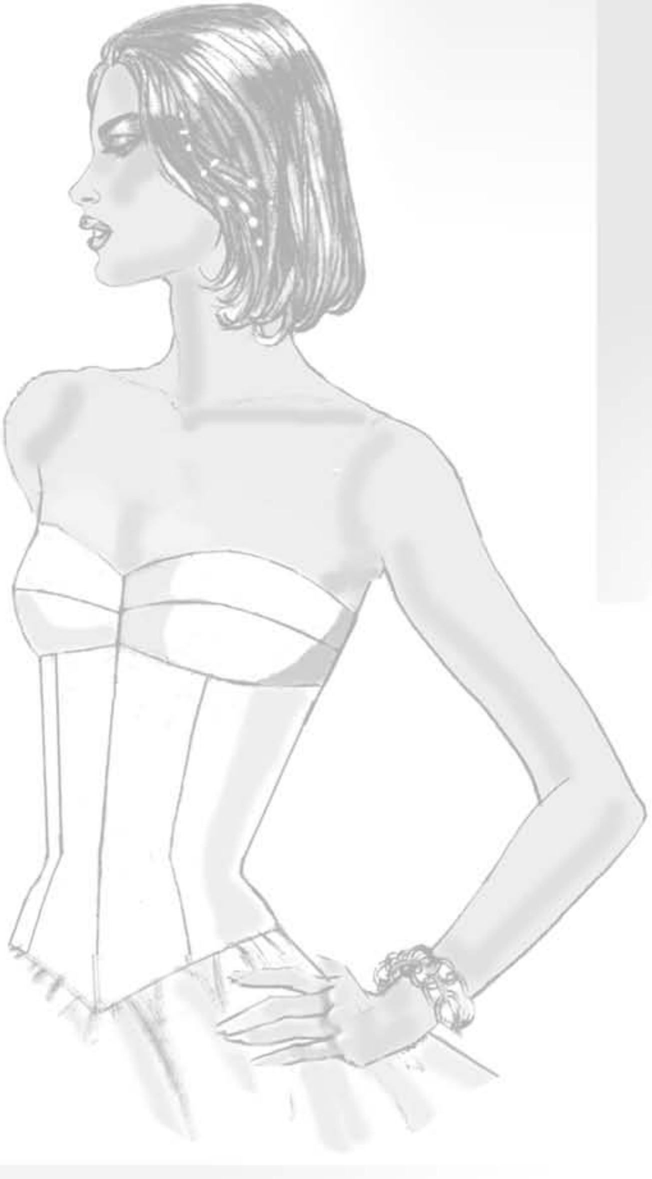
(9)

Solution from The Ultimate Tests

Slash and spread to create the ruffle. Retrace the pattern. The right dart is stitched. The other dart overlays the underlay at center front. Binding finishes the raw seams; add 1/4 " and 1/2 " seam allowance. C attaches to D.

Strapless Foundation and Interconstruction

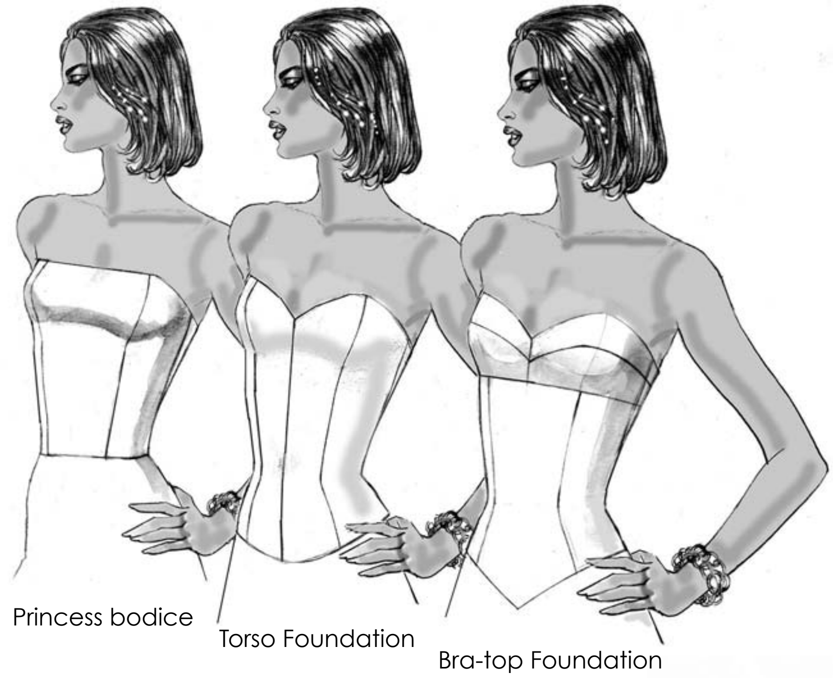
INTRODUCTION TO STRAPLESS GARMENTS
STRAPLESS PRINCESS BODICE
FOUNDATIONS 1 AND 2
PRINCESS WITH GATHERED PANELS
BRA-TOP TORSO FOUNDATION
PRINCESS TORSO FOUNDATION
FITTING PROBLEMS AND SOLUTIONS
UNDERSUPPORT FOR STRAPLESS GARMENTS
    Light-Weight Interconstruction
    Heavy-Weight Interconstruction
    Types of Boning
    Lining, Boning, and Closure
    Preparing Strapless Patterns for the Undersupport
BUSTIER, CORSELET, AND WASPIE FOUNDATIONS
GROMMETS AND LACING
BUSC CLOSURE



From Chapter 19 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

INTRODUCTION TO STRAPLESS GARMENTS

Strapless garments are garments that contour the bust area and terminate at varying distances up, or at, bust level, and remain in place when worn. Strapless garments requires undersupport for security. The kind and amount of support depends on the purpose of the design. See the Lining, Boning and Closure section later in this chapter for more information.



Three Basic Strapless Foundations

The princess bodice, princess torso, and bra-top are popular foundations for day dresses, evening wear, gowns, casual bedtime wear, and wedding dresses.

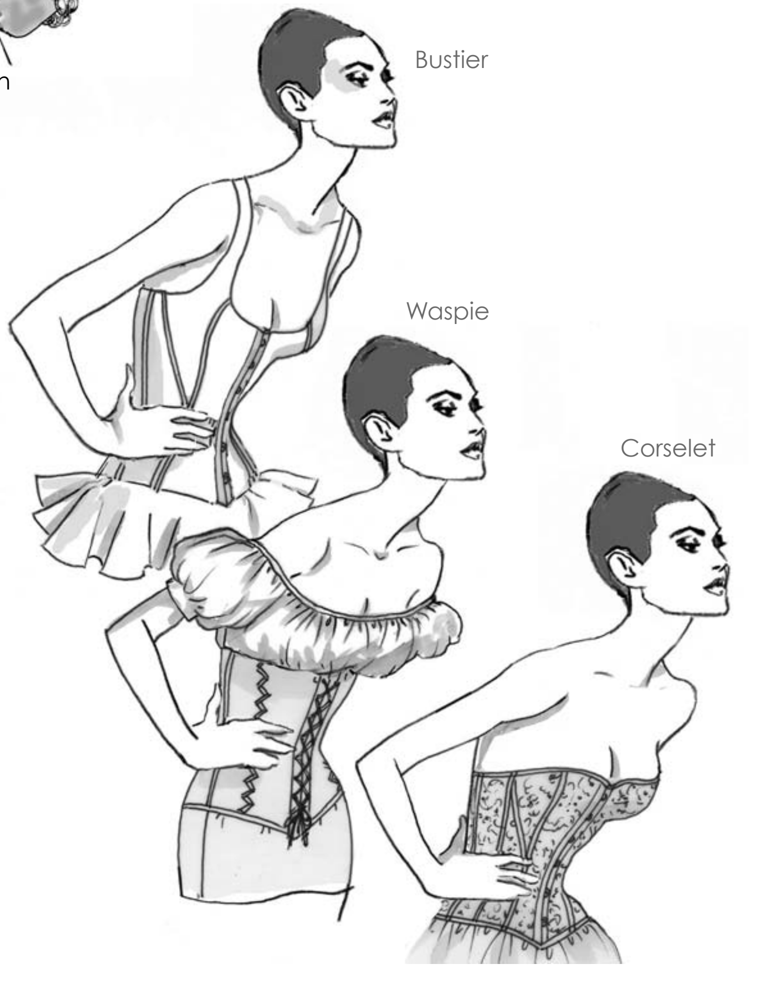
Other Strapless Foundations

The bustier, corselet, and waspie foundations have their own special characteristics and are good choices as the foundation(s) for theatrical costumes, period costumes, and dance wear. Garments such as these require special underconstruction.

Princess bodice foundation. Contoured above, below, and in between the bust. However, if the bust is bridged, contouring between the busts is omitted.

Princess torso foundation. Contoured above, below, and in between the bust.

Bra-top empire foundation. Contoured above, below, and in between the bust.



Bustier foundation. Contour under the bust ending at, or slightly above, the bust point (varies by degree) and can have shoulder or neck straps or sleeves.

Corselet foundation. Contours under the bust so that it pushes the fullness of the bust upward.

Waspie foundation. Fits tightly under the bust to emphasize busts prominence and to minimize the waist.

STRAPLESS PRINCESS BODICE FOUNDATIONS 1 AND 2

Foundation 1—Contoured above, below, and in between the bust. Back is strapless, cut low.

Foundation 2—Bust is bridged and centerline is not seamed. Contoured above and below bust. Back is strapless, cut low.

Foundation 1

Figure 1

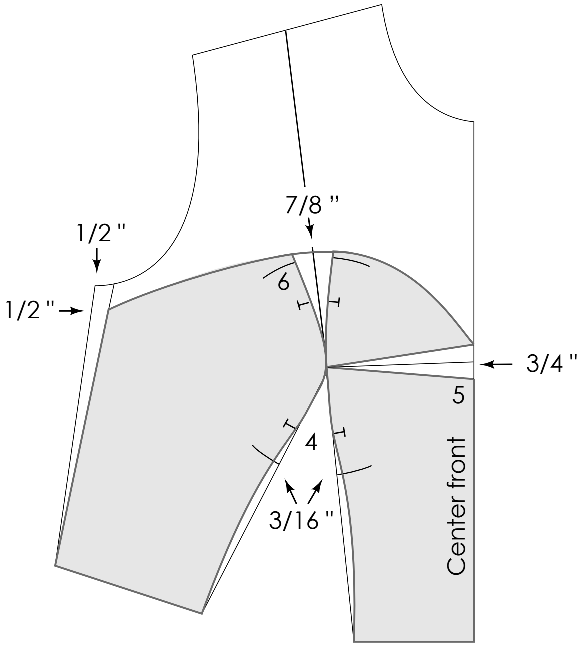
If you are not using the contour guide pattern, follow the pattern plot and measurements.

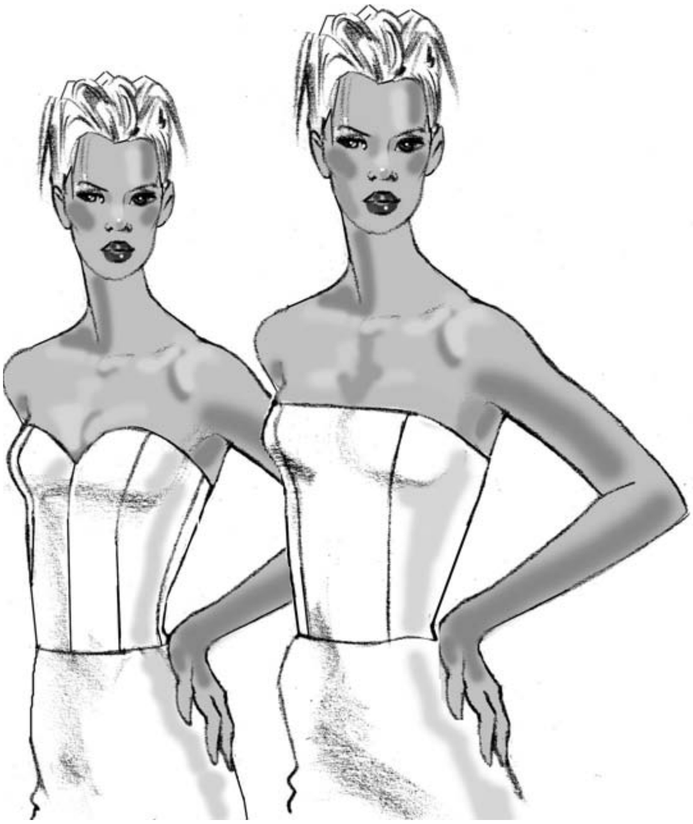
- Trace front bodice. Transfer contour guidelines 4 (semi-fit—3/16 inch in from each dart leg), 5, and 6 and bust arc (3 inches) above and below bust.
- Draw strapless styleline as illustrated.
- Mark notches 2 inches up and down from bust point.
- Cut princess patterns from paper.

Figure 2

- Trace the back pattern; include guideline 7 to the HBL line.
- Draw back strapless line as illustrated.
- Cut the strapless back from paper. See the Under–support for Strapless Garments section later in this chapter for fabric selection and boning

Figure 1





Foundation 1 Foundation 2

Figure 2

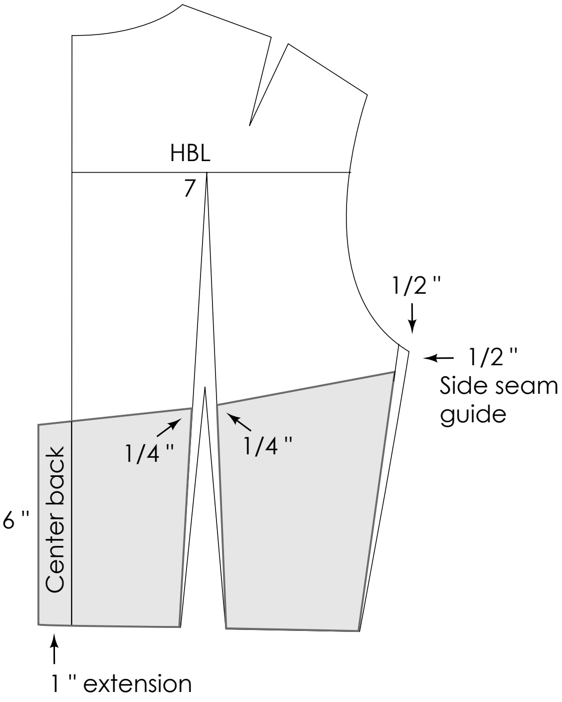


Figure 3

- Close the center front dart and trace the pattern.
- Mark 1/4 inch out from the bust point (room for boning). Draw a blending curve of the bust area.
- Draw the grainline straight or on the bias.

Figure 3

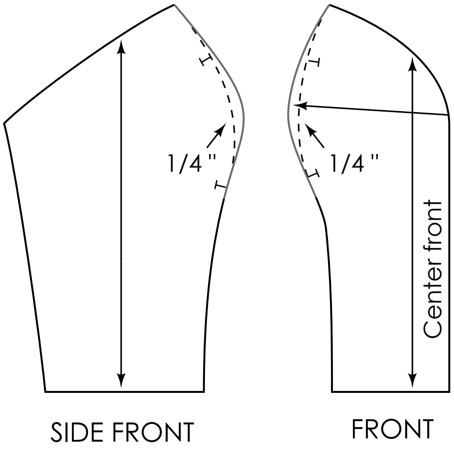
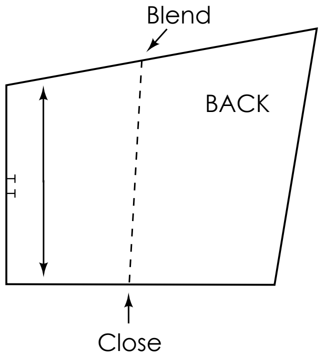


Figure 4

- Close the back dart legs and trace the pattern.
- Draw the grainline straight or on the bias.
- Complete the pattern for the test fit.

Figure 4



Foundation 2

Figure 5

If you are not using the contour guide pattern, follow the pattern plot and measurements.

- Trace the front bodice and draw the bust arc (3 inches) above and below bust.
- Transfer the contour guidelines 4 (semi-fit—3/16 inch in from each dart leg) and 6.
- Draw the strapless styleline (squared from center).
- Mark notches 2 inches up and down from bust point.
- Cut the princess patterns from paper.

Figure 5

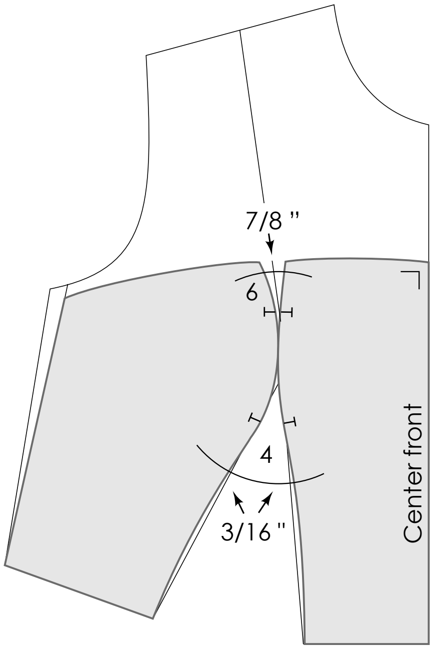


Figure 6

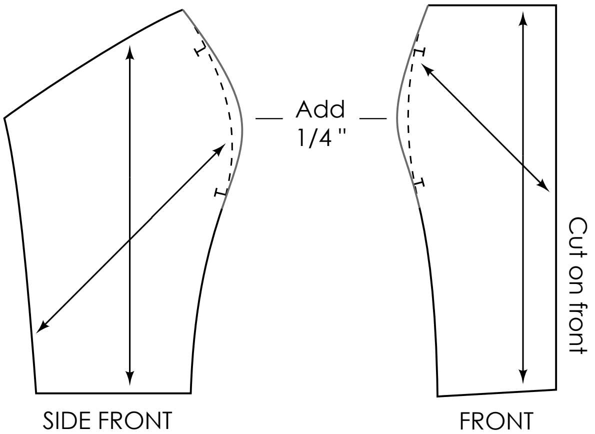


Figure 6

- Mark 1/4 inch out from the bust point to allow room for boning. Draw a blending curve of the bust area.
- Draw the grainline straight or on the bias.

See previous page Figures 2 and 4, for the strapless back.

PRINCESS WITH GATHERED PANELS

Design Analysis: Design 1

The strapless princess has a gathered front panel shirred on an angle indicating added fullness (parallel openings) and is an application of Principle #2 (Added Fullness) combined with Principle #3 (Contouring). Use the strapless princess to develop the pattern (see previous two pages). The back can be with or without gathers.

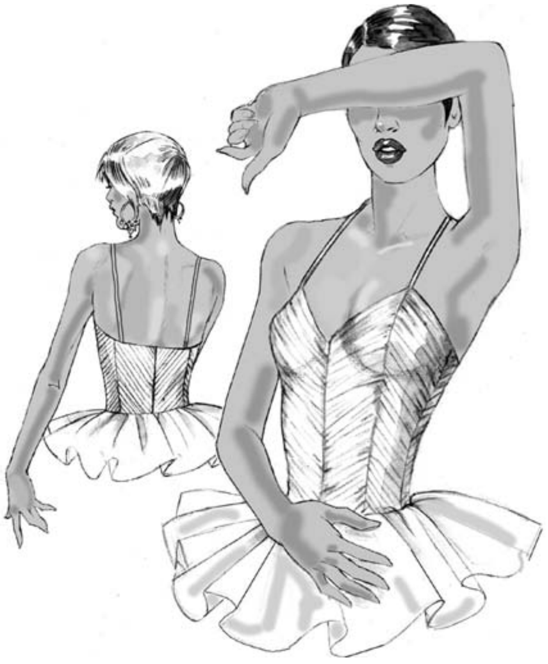


Figure 2
- Draw a vertical guideline on paper.
- Cut through each section of the pattern.
- Align the grainline with the vertical guideline.
- Spread each section 1 inch (can be more or less) and secure.
- Trace the outline of the pattern and mark the corners of each section.
- The guideline is the straight grain, or a bias grainline can be drawn. Trim 1/8 inch from princess seamlines if bias grainline is used.

Follow the same procedure for a gathered back, if desired (not illustrated).

The gathered panels are stitched to the backing panels, and they are stitched together. The lining is stitched and joined to the backing.

Spaghetti straps: 1 × 36 inches

Pattern Plot and Manipulation

If inner support is required, see Undersupport for Strapless Garments section later in this chapter for fabric guide and boning choices.

Figure 1
- Trace three copies of the back and front strapless princess patterns (include grainlines). Use one pattern set for backing, one for slashing and spreading, and one for the lining. Draw the grainline.
- Draw angle slash lines exactly as they appear on the design. Label each section for reference.

Figure 1

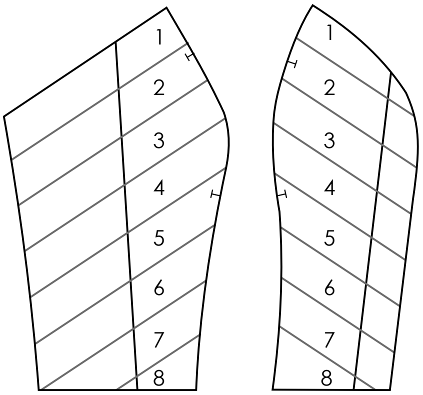
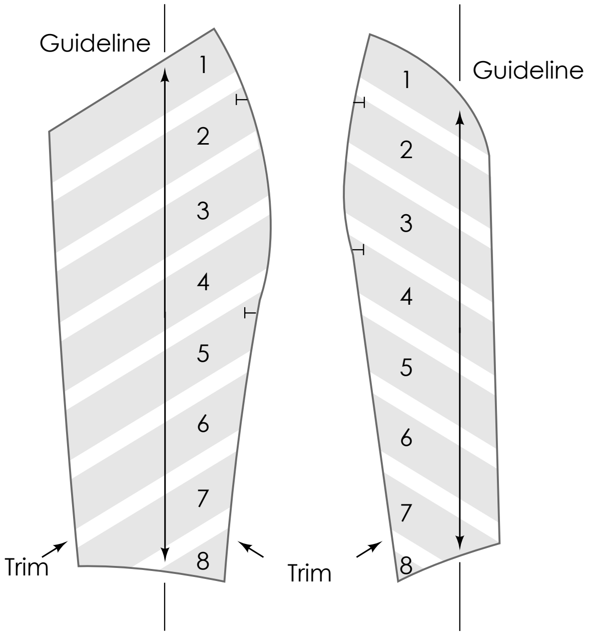


Figure 2



BRA-TOP TORSO FOUNDATION

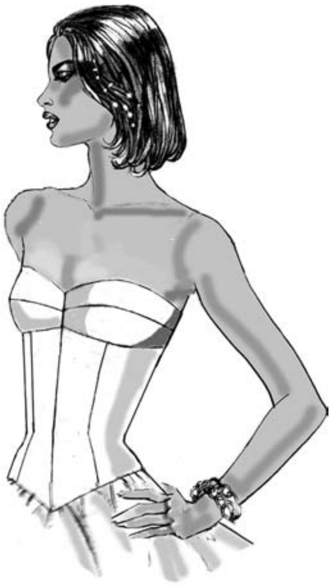


Figure 1

If you are not using the contour guide pattern, follow the pattern plot and measurements.

- Trace the front and back torso and draw bust arc (3 inches) above and below bust.
- Transfer contour guidelines 4, 5, and 6 (front). Connect contour guidelines.
- Mark 1/2 inch above the bust and draw bra styleline.
- Draw the torso styleline, as illustrated, or as desired.
- The first waist dart is increased to absorb the second dart.

Figure 2 Back

- Draw a line between the two darts.
- Mark the excess of each dart out from the line. At the strapless line, mark 3/8 inch.
- Connect the dart legs to establish the princess line. Cut and separate patterns.

Bra Top

Figures 3a, b

- Cut bra parts from the pattern.
- Close darts above and below the bra and add 1/4 inch for undersupport and blend.
- Trace and add seams.

Figure 1

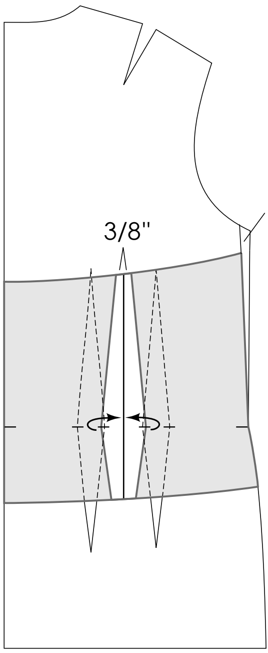


Figure 2

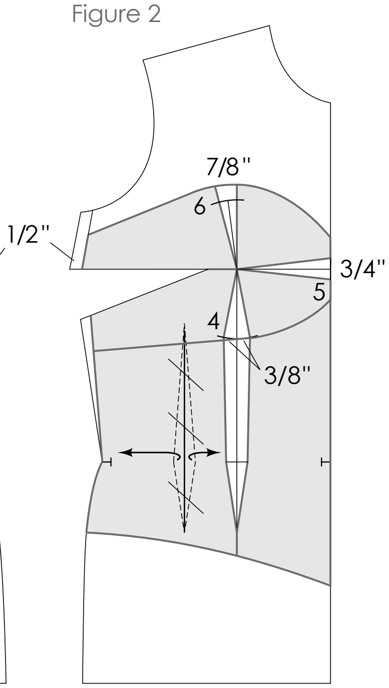


Figure 3a

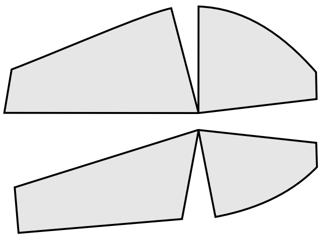
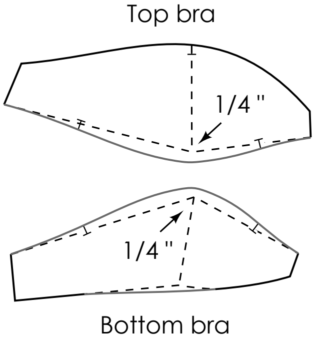


Figure 3b

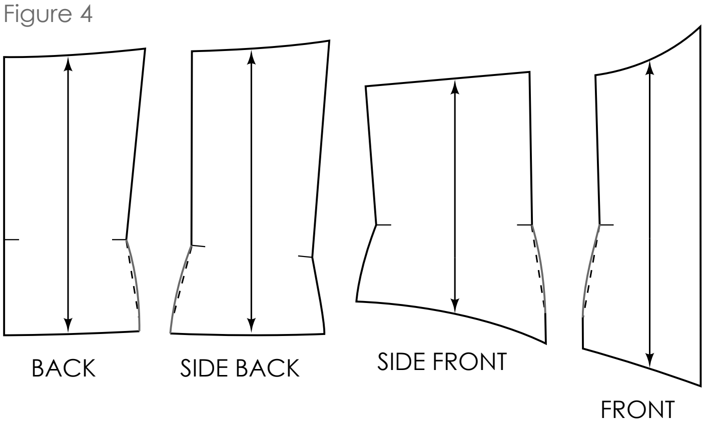


Princess Panels

Figure 4

Separate princess panels and add seams.

Figure 4



PRINCESS TORSO FOUNDATION

The princess torso is the example of under construction support. Other examples for boning variations can be used. The bustier, corselet, and waspie foundations are included.

Figure 1

If you are not using the contour guide pattern, follow the pattern plot and measurements.

Front

- Trace the front torso foundation and draw the arc (3 inches) above and below bust.
- Transfer contour guidelines 4, 5, and 6. Connect contour guidelines.
- Remove (1/2 inch) ease from the side seam.
- The first waist dart absorbs all and half the excess of the second dart. Mark dart intake on the left dart leg of the princess lines.
- Cut the pattern from paper and separate the princess panels.

Figure 2

Back

- Draw a line between the two darts.
- Mark the excess of each dart out from the line. At the strapless line, mark 3/8 inch.
- Connect the dart legs to establish the princess line.
- Cut and separate patterns.

Figure 1

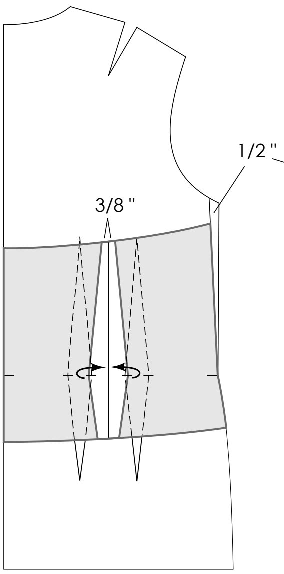
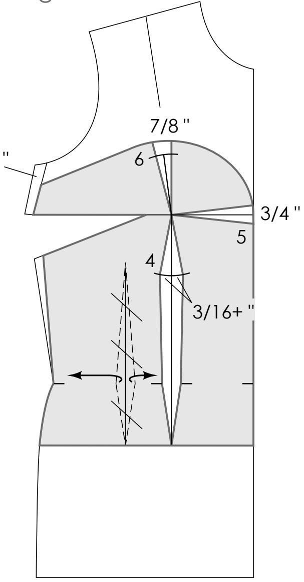


Figure 2



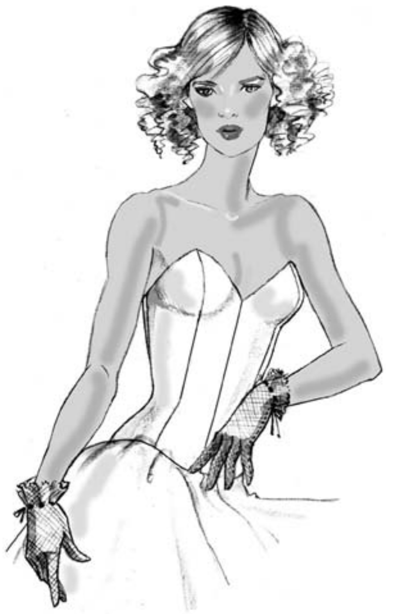
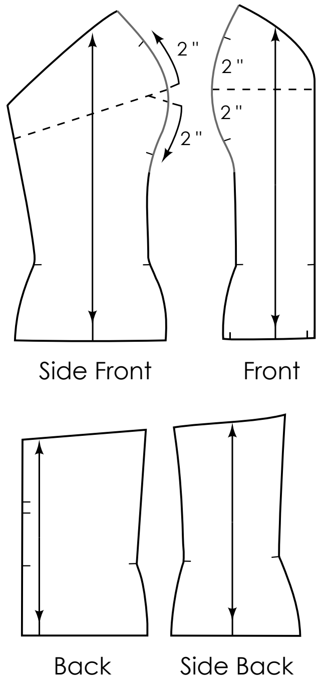


Figure 3

- Slash from the bust point to side dart point.
- Close side dart. Mark ease control notches, as shown.
- Close the center front dart and mark notches.

Figure 3



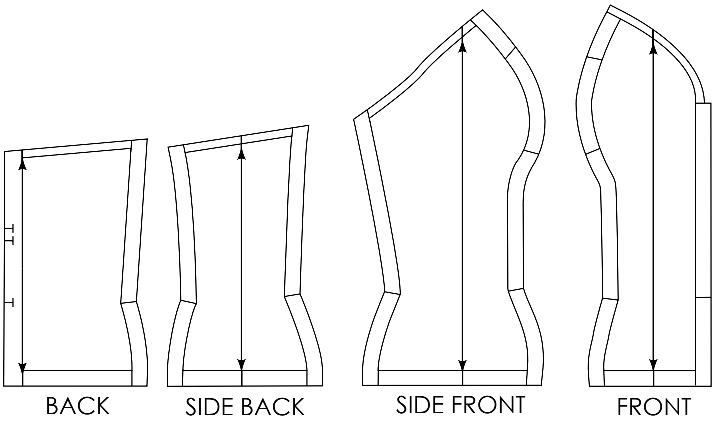
Completing the Patterns

Figure 4

- Cut, add seams, and stitch (skirt not included) for the test fit.

The princess torso is the example of underconstructed support. Other examples for boning variations can be used. The bustier, corselet, and waspie foundations are included.

Figure 4



FITTING PROBLEMS AND SOLUTIONS

Garments designed to fit the contour of the bust often create special fitting problems for the patternmaker. A good fit allows the bust cup of the garment to fit the contour of the bust without stress, and the strapless to fit comfortably on the chest area without having the center front of the garment fall away. A poor fit is often the result of insufficient bust cup room. Ease allowance around the garment can also cause fitting problems.

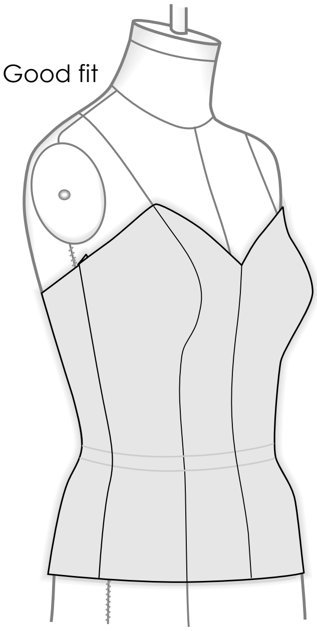
If you want to add interconstruction to the strapless foundation, see Preparing Strapless Patterns for the Undersupport section later in this chapter for instruction. A constructed strapless top should be fitted on the form with collapsed shoulders. Looseness is pinned at the side seams or at the center back.

Good Fit

Figure 1

The cups fit to the contour of the bust without stress. The strapless garment does not fall away at centerline.

Figure 1



Stress Around the Bust Area, or a Falling Away Between the Busts

Figure 2a

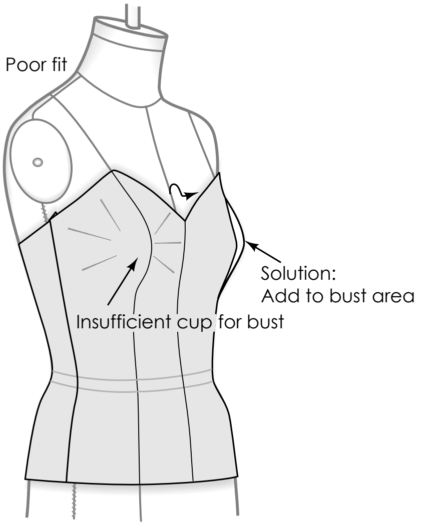
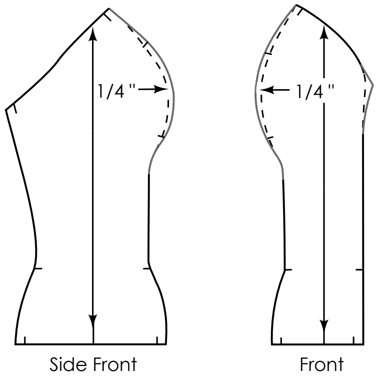

Poor fit
Solution:
Add to bust area
Insufficient cup for bust

Figure 2b


1/4"
1/4"
Side Front
Front

Figures 2a, b

- Release stitches over the bust.
- Press in at the centerline.
- Measure the open space and correct the pattern.

Bust Too Large for the Bust Cup

Figure 3a

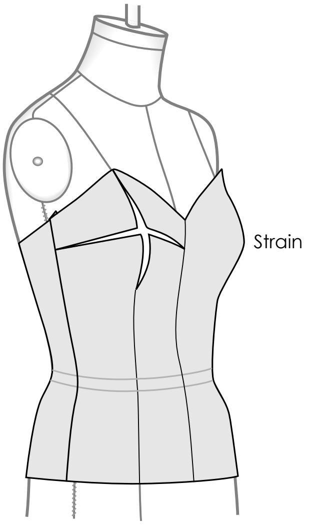
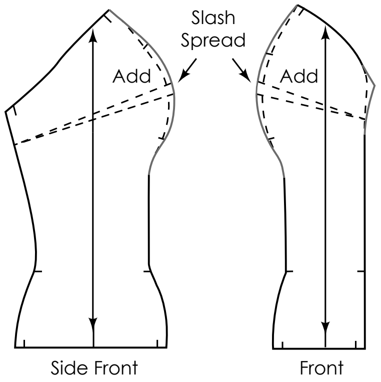


Figure 3b


Slash
Spread
Add
Add
Side Front
Front

Figures 3a, b

- Release stitches over the bust.
- Slash from bust to side and to center front. The bust will push through. Tape across and measure vertical and horizontal space.
- Correct the patterns and recut.

Tight/Loose Around Waist and/or the Bust Area

Figure 4a

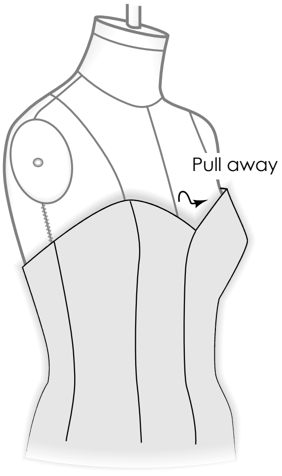
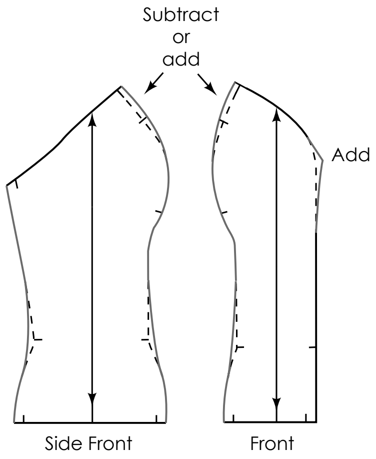


Figure 4b


Subtract
or
add
Add
Side Front
Front

Figures 4a, b

- Bust too tight at the strapless line: Release, pin, measure and stitch.
- Center falls away from bust level: Pin and restitch, correct patterns.
- Tight: Release, pin and restitch.
- Loose: Pin in required amount and stitch. Correct patterns.

UNDERSUPPORT FOR STRAPLESS GARMENTS

Patterns of strapless designs are the basis for developing interfacing, underlining, lining, and bust enhancement patterns. Select the undersupport that is appropriate for the end use of the design. A number of supplies and fabrics are listed and should be sufficient to complete the design.

Light-Weight Interconstruction

Light-weight interconstruction should be considered for designs that have a soft look, or if the fabric is delicate. Cost can also be a factor for choosing less construction. The support may include boning, facing, and a lining, and have minimal interconstruction (fusible or nonfusible).

Supplies

- Fabric: cotton net, organdy, light-weight cotton
- Boning: optional
- Lining: rayon blends, China silk, silk
- Fusible or nonfusible interfacing
- Twill tape

Heavy-Weight Interconstruction

The construction is suggested for strapless designs with heavy beading and/or multiple overlays of fabric (drapery, gathers, and pleats), and for period, theatrical, and stage costumes.

Supplies

- *Foundation—the base for interconstruction.* Fabric: medium-weight canvas, drill, poplin, weighty satin, sturdy (nonstretchy) preshrunk linen, or heavy satin Lycra
- *Underlining—shields garment from boning and raw seams of the undersupport that faces it.* Fabric: wool felt or a blend (not less than 50-50), cotton flannel, or batiste
- *Lining—covers all raw seams.* Fabric: rayon blends, China silk, design fabric
- *Bust padding—gives a firm shape to the bust.* Fabric: thick, fiber-filled batting, 2 to 3 plies of a stiff fabric (canvas or Belgian linen)

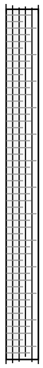
Other Items

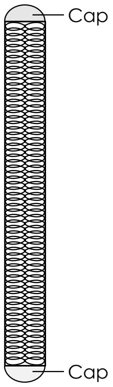
- Grosgrain ribbon or twill (1/4 inch to hold ease at the top of strapless garments), 3/4- to 1-inch-wide grosgrain or elastic to secure the garment at the waist

Types of Boning

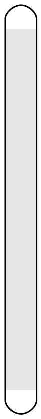
Boning provides a light-weight, skeletal frame that supports the garment. It ranges from firm, ridged, or webbed plastic called Rigilene (1); flexible coil wire boning with caps (2); flexible steel stays (3 and 4); and twill tape sealed to boning as a casing (no sample). Busc metal stays have knobs on one side and metal loops on the other. Types: narrow straight busc (5); wide straight busc (6); and spoon-shaped busc supports abdominal area, used primarily in period costumes (7).

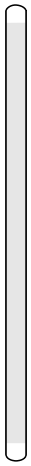
FLEXIBLE COIL WIRING

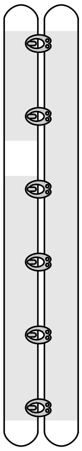

(1)

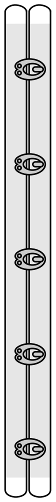


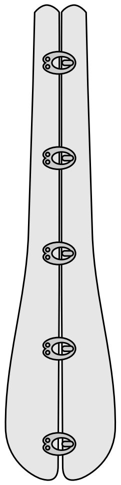
(2)


(3)


(4)


(5)


(6)


(7)

Lining, Boning, and Closure

The following instructions illustrate various ways of attaching the boning. Boning sizes are generally 1/4 to 1/2 inch wide, but may be wider for special designs. The seam allowance will be affected by the width of the boning, if it is inserted in a seam rather than a channel. Make that choice when the design patterns are developed. The samples illustrate a bustier, but they can apply to any strapless design. Procedures for attaching the busc, or grommets for lacing, are illustrated. Lining and all support is based on the design patterns.

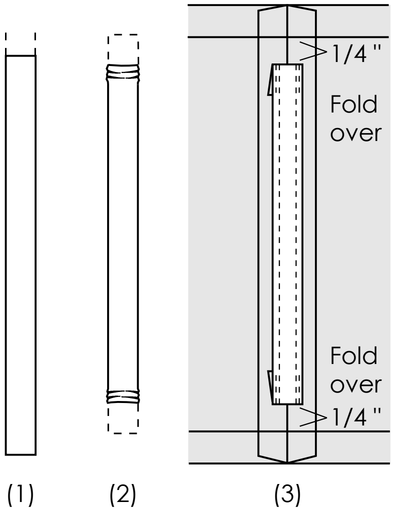
Ways to Insert Boning

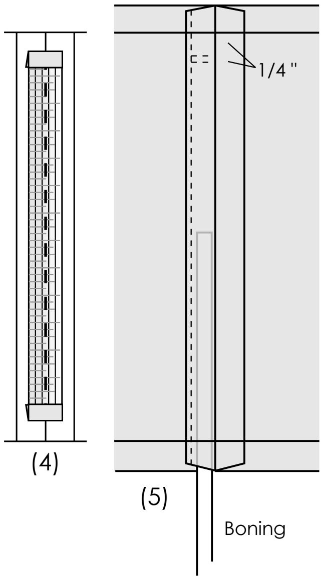
Figure 1 (1–5)

The illustration are examples of some of the various ways for securing boning to the garment.

- Encased boning is cut to seam length (1). Remove boning and trim 1/2 inch from each end. Slip the boning into the casing (2). Fold the ends under and stitch to the seam (3).
- Center rigilene over the seam and stitch through the center. Twill covers the blunted edges for protection (4).
- Stitch one side of the seam allowance to the garment forming a casing for the boning. Stitch across 1/4 inch from the top to stop the boning. Slip the boning into the casing and stitch 1/4 inch across the bottom (5).

Figure 1

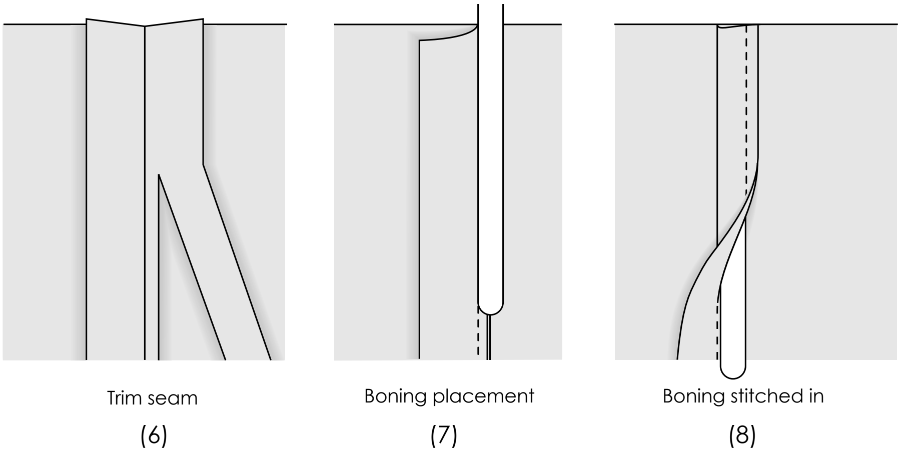




Fold-Over Seam Boning

Figure 1 (6–8)

- Move seam over and trim to within 1/8 inch of the seam (6).
- Place boning snug to the seam (7).
- Fold seam over and stitch with a zipper foot close to the edge of the boning (8).



Marking Channels for Bone Insertions

Figure 1

Channels are spaced top-stitching, making room for the insertion of stays, or boning in between seams for additional support. Channels can be of any angle. Closure instructions for gromets and lacing are within the Grommets and Lacing section later in this chapter. Busc closure is discussed in the Busc Closure section later in this chapter.

Figure 1

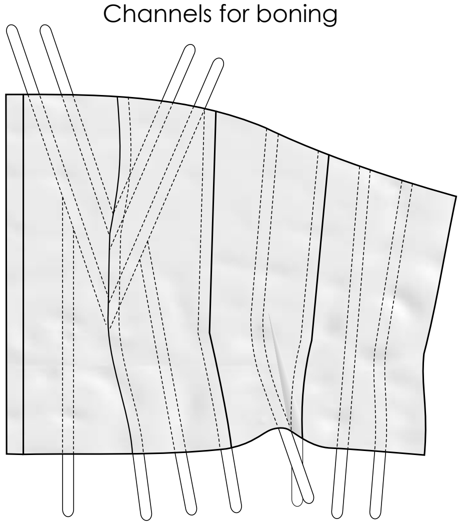


Figure 2a

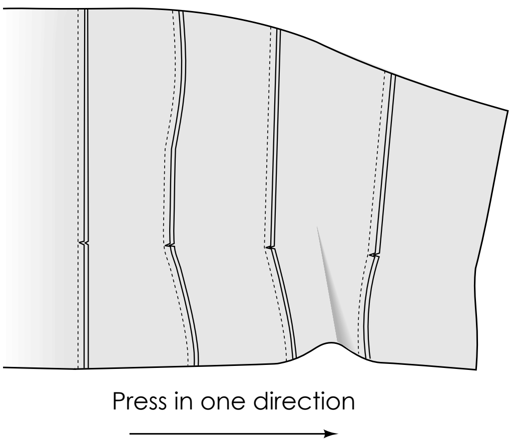
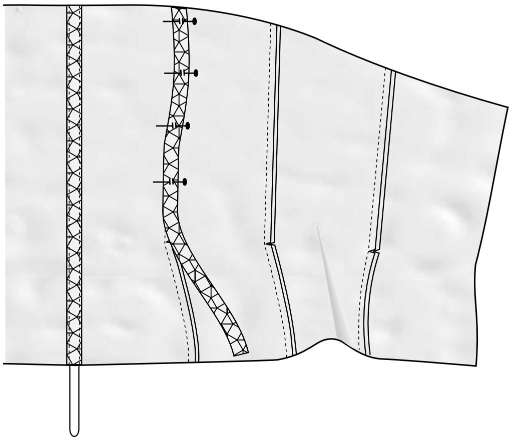


Figure 2b



Boning on the Right Side of the Garment

Figures 2a, b

- The seams are sewn raw side up on the right side of the garment. The seams are pressed in one direction and trimmed to within 1/8 inch. See Figure 2a.
- Ribbons (any trim) are pinned, centered over the seam, and edge-stitched to the garment.
- The ribbons are casing for the insertion of the boning. If more support is preferred, chalk mark and stitch ribbons at those locations,
- Complete the garment with a facing at the entry for grommets or busc.

Preparing Strapless Patterns for the Undersupport

The princess torso is the prototype for the following instruction. However, the information can be applied to other foundations and design patterns. See Princess Torso Foundation section earlier in this chapter for instructions on developing the princess foundation. See previous three pages for boning instruction.

Lining and Underlining Patterns

Trace two copies of the torso patterns. Add 3/4 inch to the top of each pattern to allow for fitting adjustments.

Figure 1 First Copy
The first copy is for the lining, if required.

Figure 1

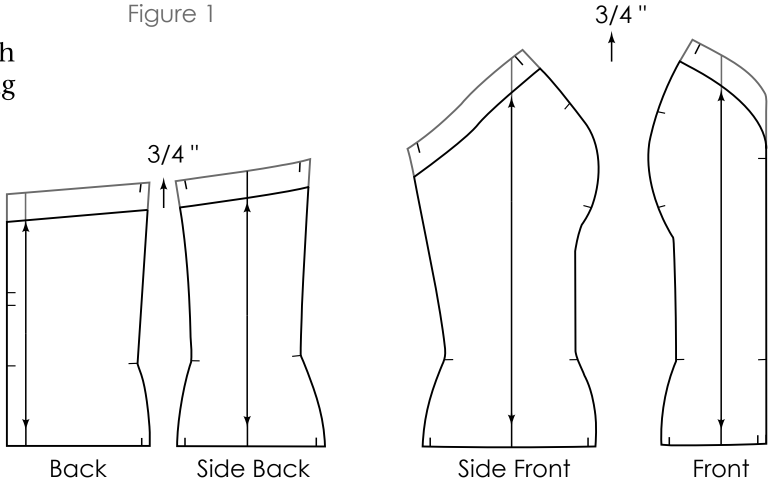


Figure 2

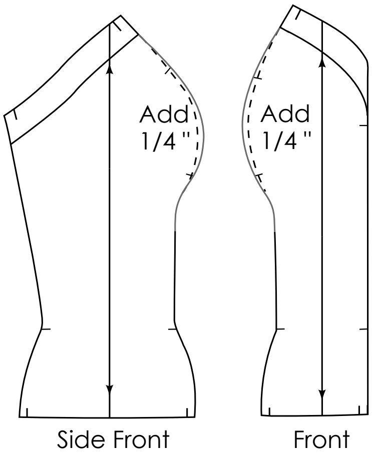


Figure 2 Second Copy

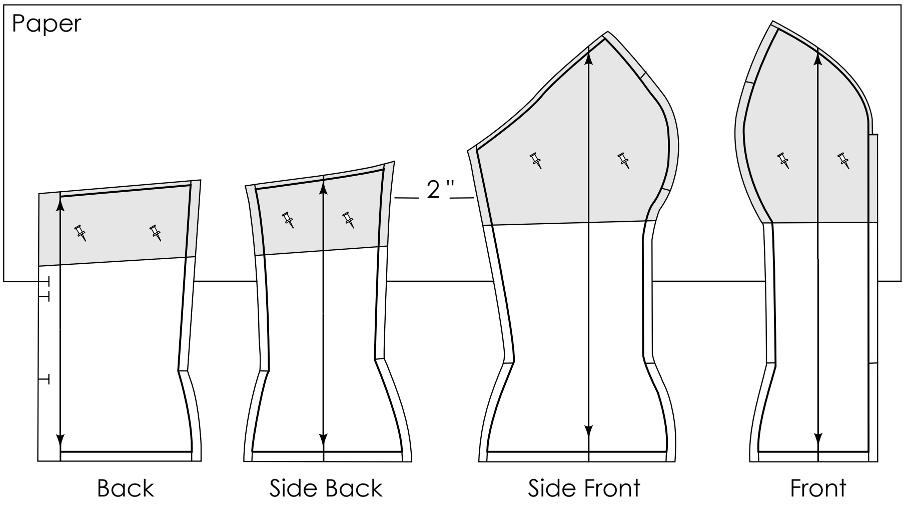
- Add 1/4 inch on each side of the bust mound panel to allow for boning or padding that will serve as an underlining for the design garment and as a base for generating the design garment.
- Cut in the fabric of your choice.
- Press seams open.

Padded Bra

Figure 3

- Place the original pattern on paper.
- Trace to the under-bust area and 2 inches wide across the back patterns (shaded sections).
- Cut from the paper.

Figure 3

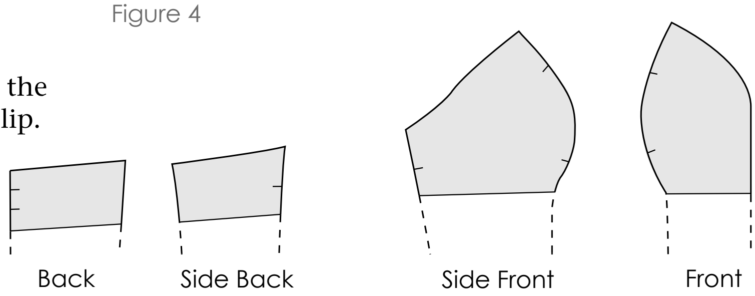


Bra Cups

Figure 4

Trim the seam allowance and extension (unless the pattern is seamless). Mark notches, but do not clip.

Figure 4

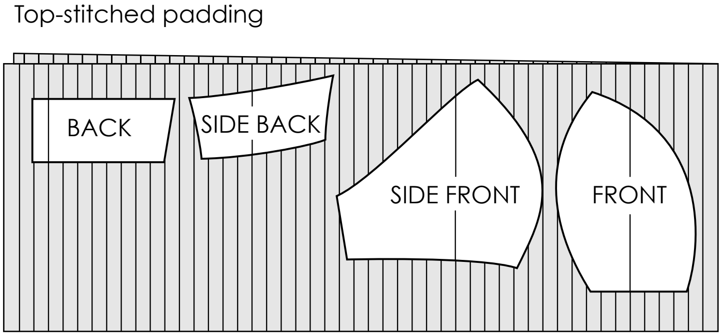

Back
Side Back
Side Front
Front

Preparing the Padding for the Bra Cup

Figure 5

- Choose the fabric for bust padding; see suggestions on pages 414–415.
- Cut the fabric 9 inches × 20 inches.
- Top-stitch 1/4-inch rows vertically through the fabric.
- Place the bra patterns on the padding. Trace and cut.
- Mark notches, but do not slash.

Figure 5


Top-stitched padding
BACK
SIDE BACK
SIDE FRONT
FRONT

Joining Bra Padding

Figure 6

- Join the raw edges by hand-stitching, or machine-stitch or zigzag together.

Figure 6

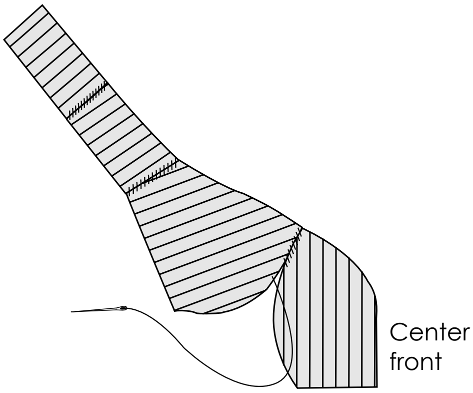
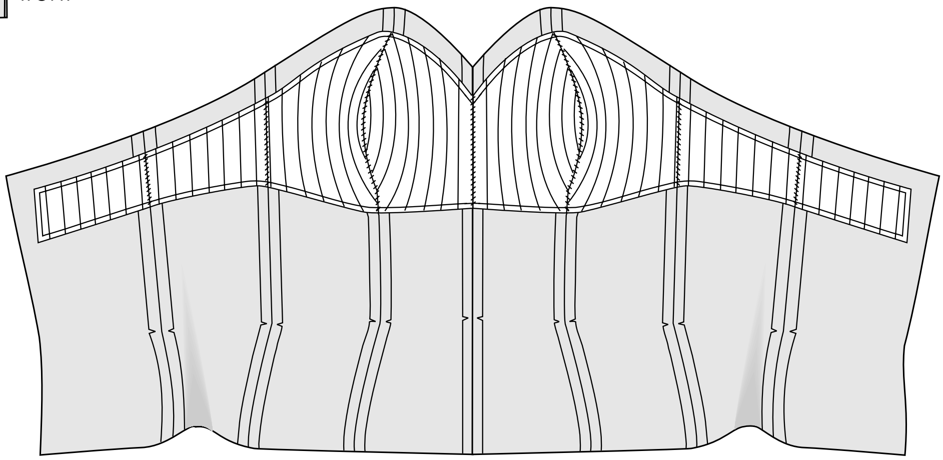

Center front

Figure 7

- Fit padding snugly to the garment, 1 inch from the top. Pin to hold.
- Stitch around the outer edges to secure padding to undergarment.

Figure 7



Attaching Cased Boning

Two different versions are illustrated. Boning should end before reaching the top and bottom seams to prevent the boning from poking into the body.

Figure 8

- Right view: Boning is stitched to each seam and ends from 1/4 to 1/2 inch from the top and bottom of the garment. A 1/2-inch-wide grosgrain ribbon can be tucked at each waist seam (holding 1/8 inch ease) between panels. Another version is illustrated on next page Figure 13.
- Left view: Attach boning as discussed for the right. Boning is stitched from side waist, diagonally over the padded bust to the princess seam. For some styles (bustier, corselet, waspie, period and Vegas costumes) boning is extended through the waist ending just above the torso line.

Figure 8

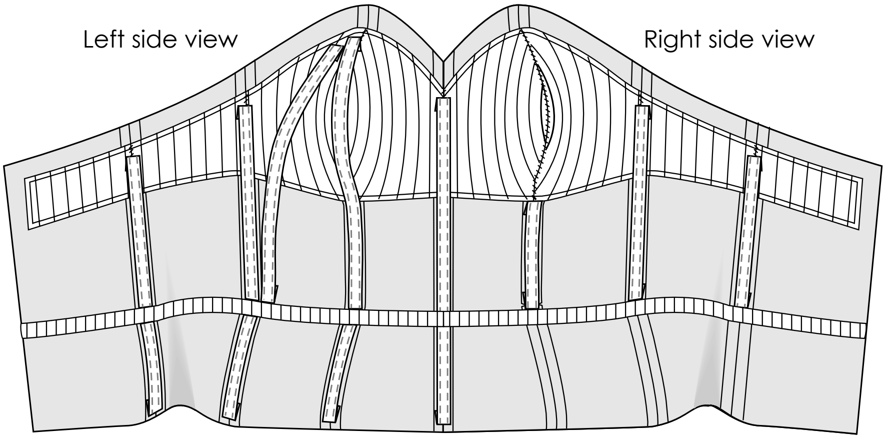


Figure 9

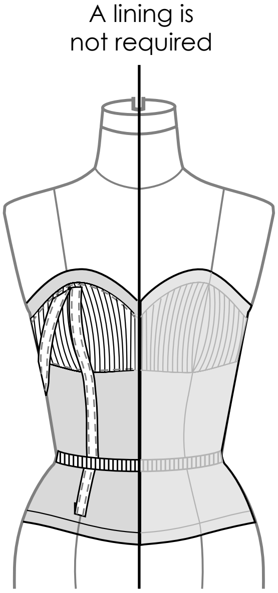
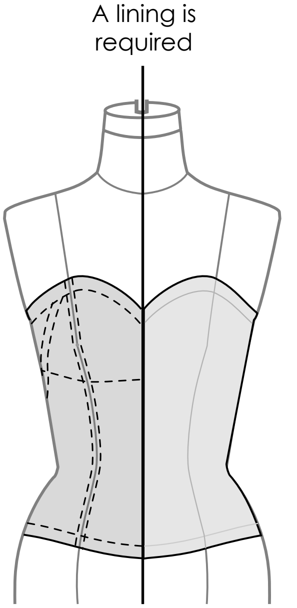


Figure 10



Lined, or Unlined

Figure 9
A lining is *not* required if the raw seams of the design lie over raw seams of the undersupport.

Figure 10
Lining is required if the raw seams of the design garment lie over the finished side of the undersupport.

Attaching the Constructed Undergarment

Figure 11

The constructed undergarment is attached to the design garment in one of two ways, with or without lining. If there is a lining, the design garment is placed between the clean side of the undersupport and the lining. The lining covers raw seams, boning, and padded bra, giving a clean finish the garment, as illustrated in the example. Stitching 1/16 inch above the strapless line joins all three. If the design garment is beaded or has several plies of fabric, the stitchline can be 1/8 inch above the strapless line.

Lining is not required when the raw seams, boning, and padded bra face the underside of the design overlay. In this case, the finished side of the undersupport serves as the lining. This type of construction requires that an underlining be the design overlay. If light-weight construction is chosen, an underlining is not required. Review previous page, Figures 9 and 10.

Figure 11

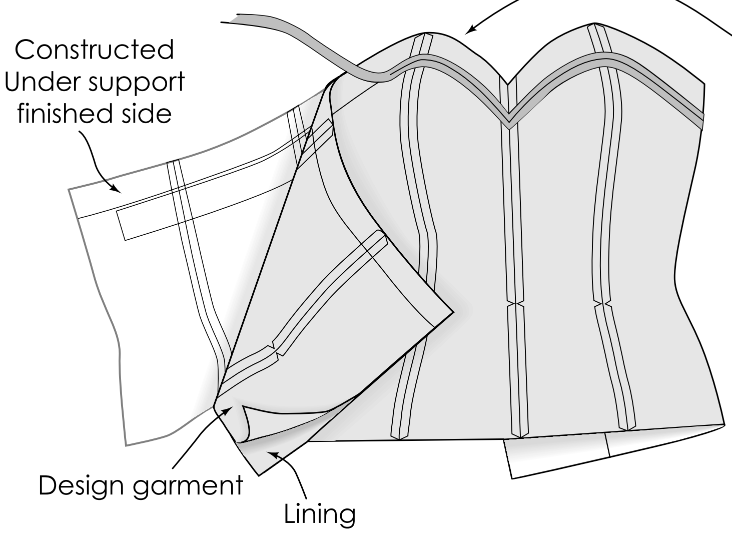
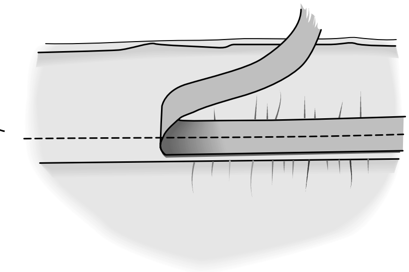


Figure 12



Controlling Ease

Figure 12

- Stitch twill or grosgrain 1/16 inch above the stitchline of the strapless top, starting at the center back to the side seam.
- Hold 1/8-inch ease from the side seam to the princess line and 1/8 inch to the center front.
- Repeat on the other side to help secure the strapless top on the figure.
- Trim the strapless tops to within 1/4 inch of the seam allowance. Turn to the right side and under-stitch.

Securing the Waistline

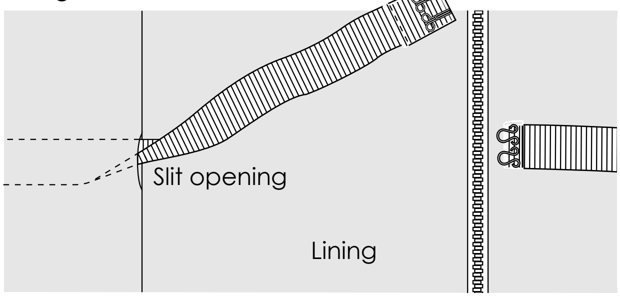
Figure 13

Cut grosgrain ribbon or elastic (1/2- to 3/4-inch wide) to the waist measurement of the pattern. It can be attached in one of two ways as follows:

1. Less 1 inch of the waist measurement, center and tack proportionately to waistline seams and sew in with the zipper seam.
2. Fold each end and stitch the hook and eyes. Center and tack proportionately to the waistline. The ribbon/elastic is pulled through a small opening in the lining seam closest to the zipper.

Figure 13

Grosgrain or elastic waist cincher



BUSTIER, CORSELET, AND WASPIE FOUNDATIONS

The bustier/corselet and waspie of the 1800s reshaped the human body to fit the fashionable whims and silhouettes of the day. Reshaping accoutrements were built into the bustier/corselet to minimize the waist and maximize the bust.

The foundation patterns can be adapted for period, theatrical, and dance costumes. The bustier remains a fashionable item because of its seductive appeal.

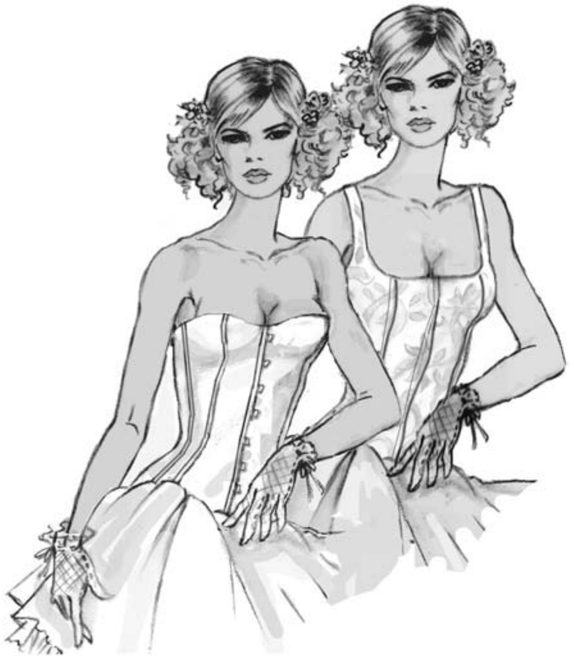
Popular closures are by lacing or the busc; both are illustrated. See Grommets and Lacing section later in this chapter.

The designer should plan in advance for the kind of support that is required to complete the design. Have supplies ready for use.

Projects are based on the contour torso pattern.

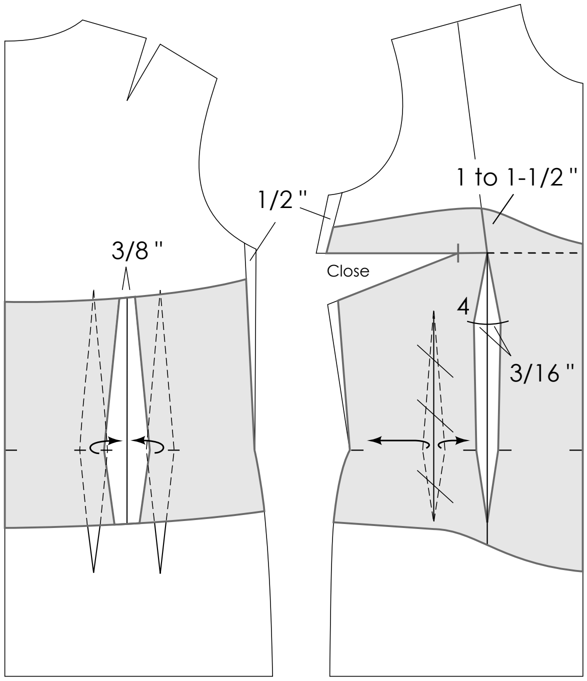
Bustier Foundation

The bustier foundation can be dressed up or down, worn as a separate, or designed with a skirt or pant.



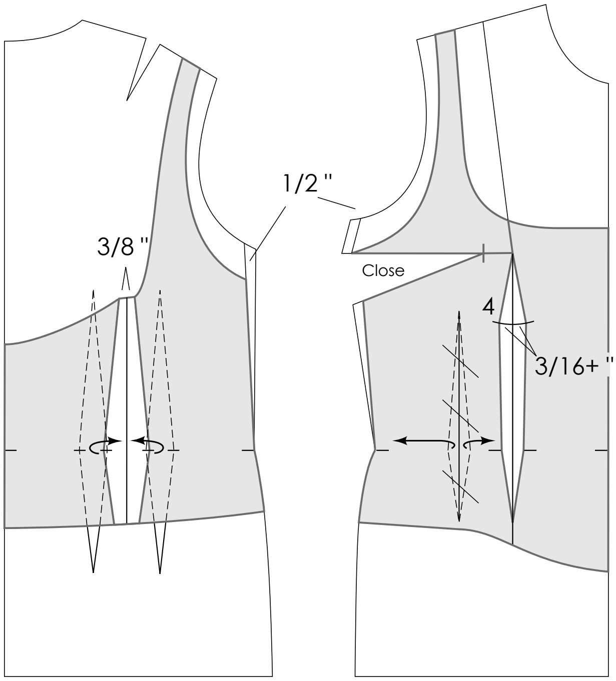
Bustier with Shoulder Straps

Plot the strapless styleline 1 to 1 1/2 inches above bust point. Complete the plotting and separate patterns. Close side dart, and add seams.



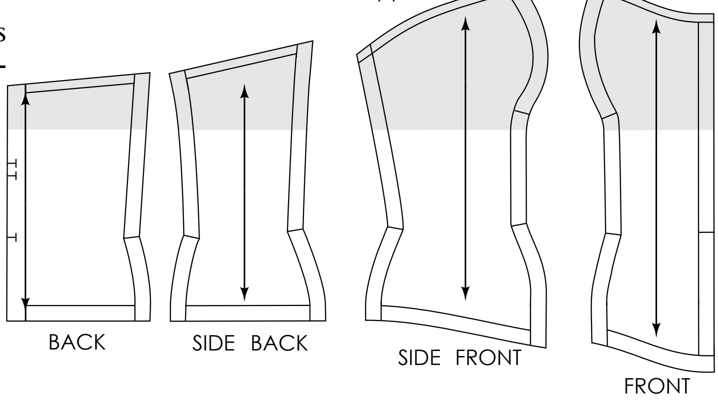
Strapless Bustier

Plot the strapless styleline 1 to 1-1/2 inches above bust point. Complete the plotting and separate patterns. Close side dart and add seams.



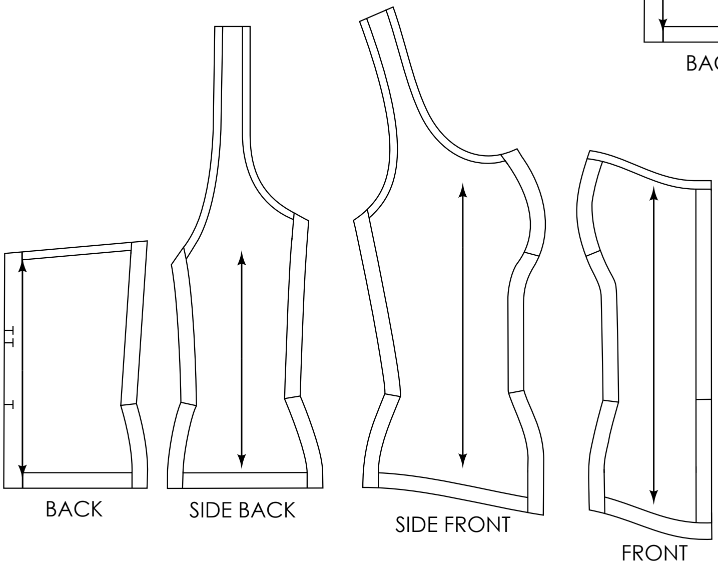
Completed Patterns for the Bustier

If additional boning is desired, mark the placements on the pattern. See Making Channels for Bone Insertions section earlier in this chapter for guide.



Shaded area indicates added support.

BACK
SIDE BACK
SIDE FRONT
FRONT



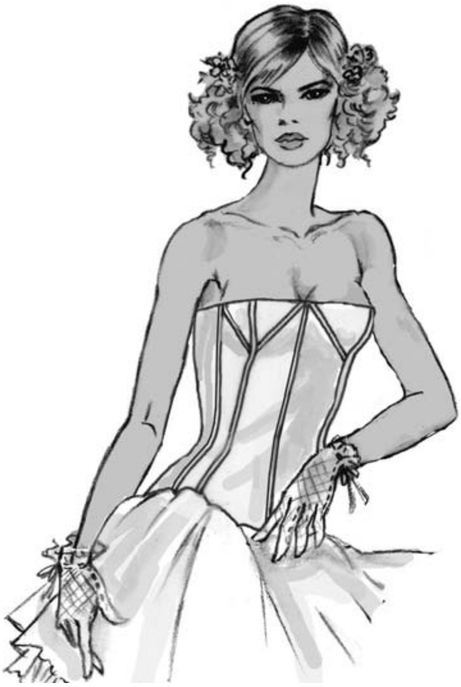
BACK
SIDE BACK
SIDE FRONT
FRONT

Completed Patterns for Bustier with Straps

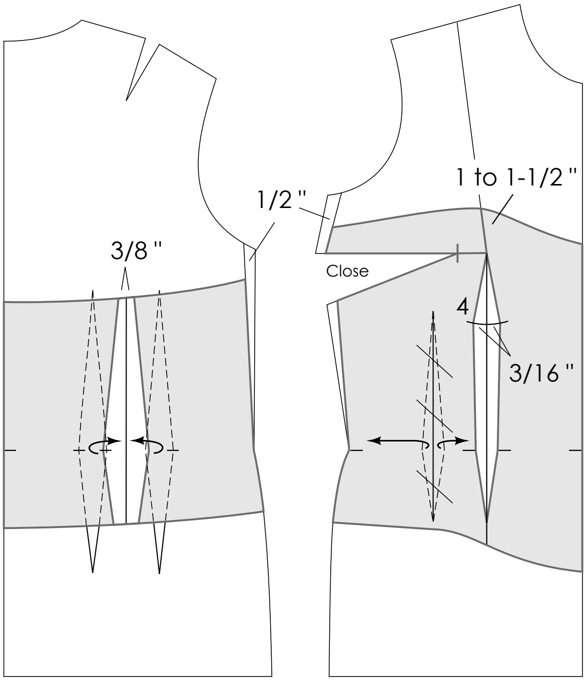
If additional boning is desired, mark the channels on the pattern. See Making Channels for Bone Insertions section later in this chapter for a guide.

Corselet Foundation

The strapless neckline crosses over the bust at or just above the bust points. Under the bust is closely fit and shaped to push the busts together and upward. Plot the foundation. Cut from paper; trace panels. See next page for completed foundation and other information. Trace the panels and draw. Styleline placements are shown or by choice or design. Back lacing instructions are two pages ahead.

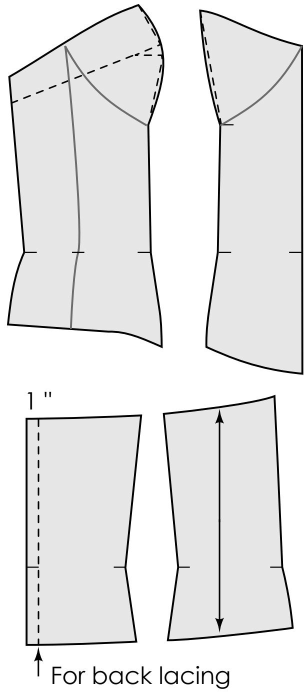


Pattern plot



1/2"
3/8"
1 to 1-1/2"
Close
4
3/16"

Styleline placement

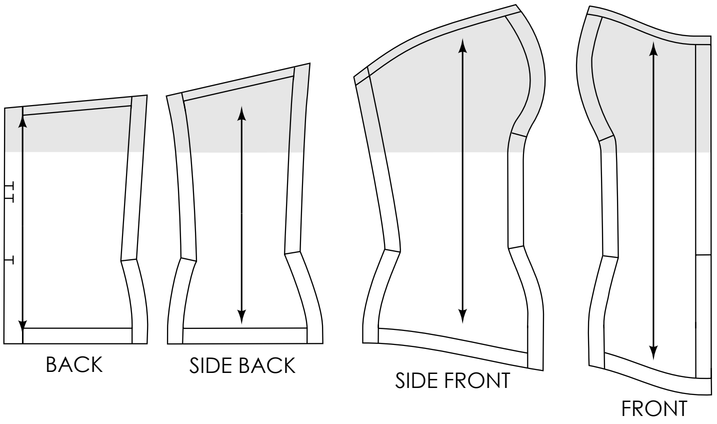


1"
For back lacing

Completed Corselet Foundation

If additional boning is desired, mark the placements on the pattern. See Undersupport for Strapless Garments section earlier in this chapter for undersupport fabric suggestions. Shaded areas indicate extra support.

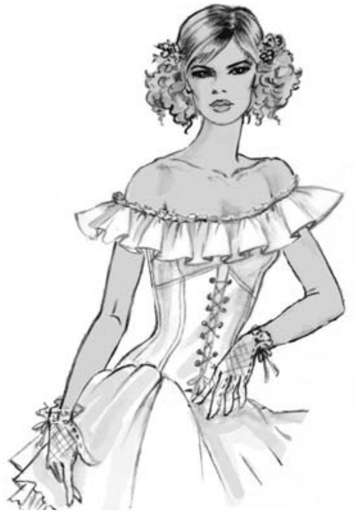
Closer types. See next page for grommets and lacing; look ahead two pages for busc instruction.

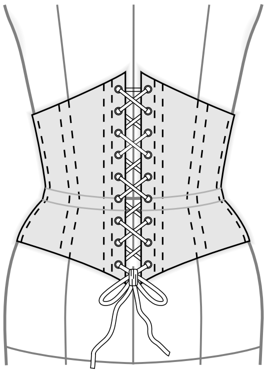


Waspie Foundation

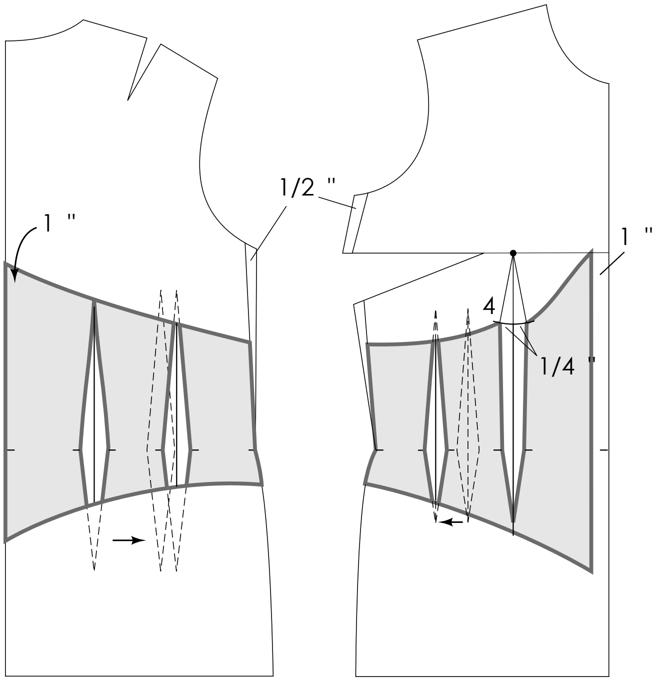
The waspie is included because it also helps to emphasize the bust by cinching the waist. The waspie can be drafted using princess lines or separated into additional panels for boning (as illustrated). The waspie is worn over other items of clothing. See Undersupport for Strapless Garments section earlier in this chapter for undersupport fabric suggestions. For grommets and lacing, see next page.

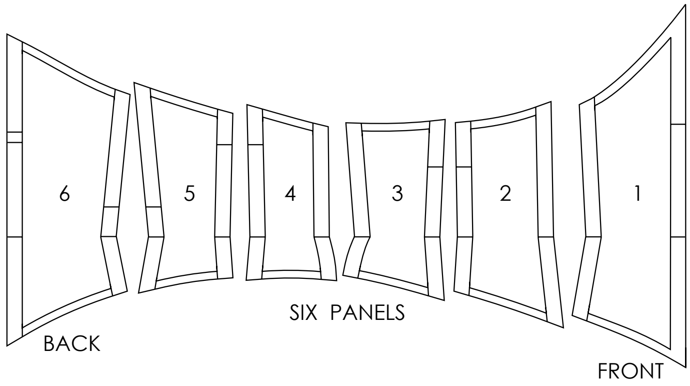
Front lacing: Remove 1" at center front
Back lacing: Remove 1" at center back





Back view





Completed Patterns for the Waspie

Separate the pattern parts and add seams. The center front can be laced, or use the busc for the opening.

GROMMETS AND LACING

You will need the following supplies: a small hammer, eyelet hole punch and metal eyelet setter, iron-on canvas, and lacing (nylon or leather shoelaces, ribbon, or cording).

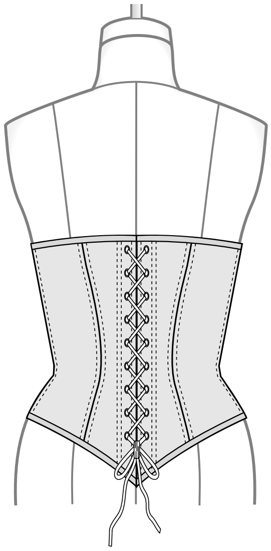


Figure 1a

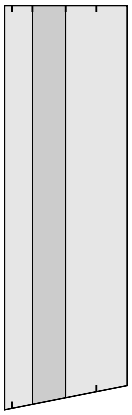


Figure 1b

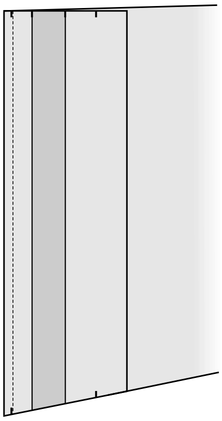
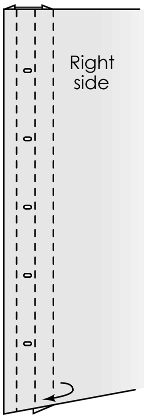


Figure 1c



Facing

Figures 1a, b, c

- Cut facing 2 to 2 1/2 inches wide.
- Press iron-on canvas or equivalent interfacing on wrong sides. Cover the complete facing, or in the space needed for grommets, as shown in Figure 1a.
- Place facings on design fabric with right sides together and stitch to the garment (Figure 1b).
- Stitch a 1/4-inch seam, and press the seam open. Turn and stitch a 3/8-inch seam channel for boning. Stitch another row to the width of the boning.
- Turn raw seam under and edge-stitch (Figure 1c).

Figure 2d

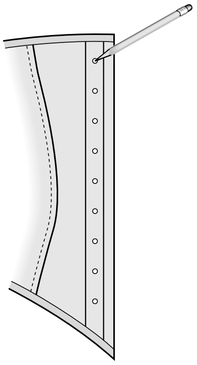
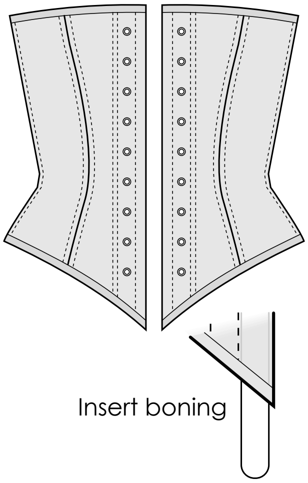


Figure 2e



Marking Grommet Placements

Figures 2d, e

Lay garment flat and mark the grommets 1 to 2 inches apart (Figure 2d). Repeat equally on the other side and pierce through the fabric, inserting boning through channels (Figure 2e).

Figure 3f

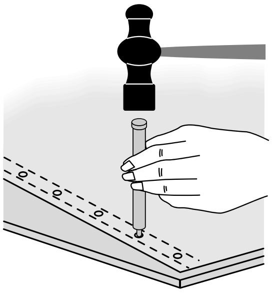
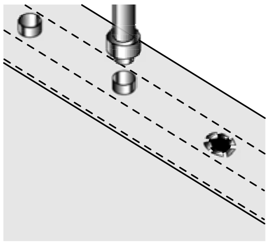


Figure 3g



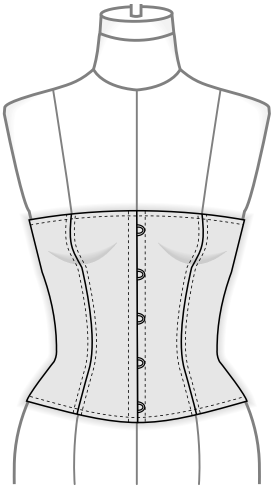
Attaching the Grommets

Figures 3f, g

- The hammer and eyelet hole punch will cut through the layers of the fabric's right side (Figure 3f).
- Push through the eyelets and turn the garment over. Set eyelets with the implement. The eyelets will spread the edges, clamping them securely to fabric (Figure 3g).
- Slip the boning into channels next to the grommets.

BUSC CLOSURE

Before attaching the busc to the garment, a 2-inch-wide iron-on canvas should be applied to the left side on the wrong side of the design fabric.



Right Side Closure

Figures 1a, b, c

- Cut a 2-inch-wide self-facing to length of the entry side of the garment.
- Place the clasp on the facing aligned with facing's edge and pencil-mark each clasp (Figure 1a).
- Place the wrong side of the facing on edge of the right side of the design. Stitch a 1/4-inch seam to each slit opening and back-stitch to secure (Figure 1b).
- Press seam open. Turn and slip the clasp into each opening. Use the zipper foot to stitch close to the metal's edge. Fold raw seam over and stitch (Figure 1c).

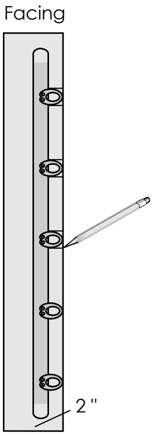


Figure 1a

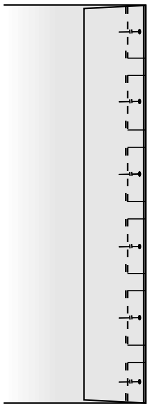


Figure 1b

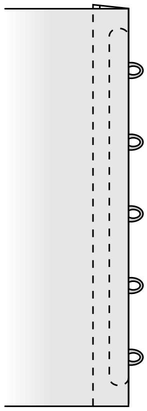


Figure 1c

Left Side Closure

Figures 2d, e, f

- Place a 2-inch-wide iron-on canvas on the wrong side of the designer's left side. Mark knob placements to correspond with the clasps.
- Use an awl or ice pick to penetrate through the fabric (Figure 2d).
- Stitch facing to the center front and press seam open. Fold over and stitch 1/8 inch down the front. Place the knob snug against the stitch line (Figure 2e).
- Fold the fabric over and push the knobs through the holes. Stitch with the zipper foot close to the metal's edge. Fold the raw seam of the facing and edge-stitch (Figure 2f).

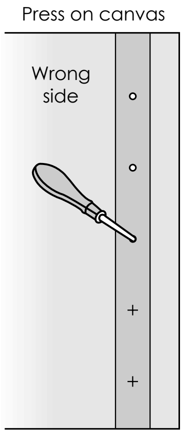


Figure 2d

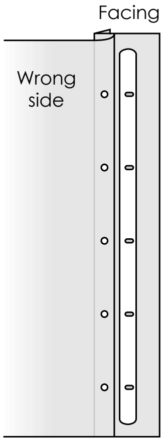


Figure 2e

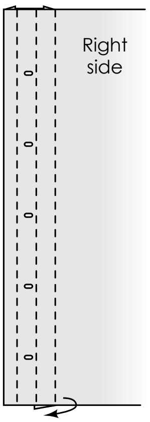


Figure 2f

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

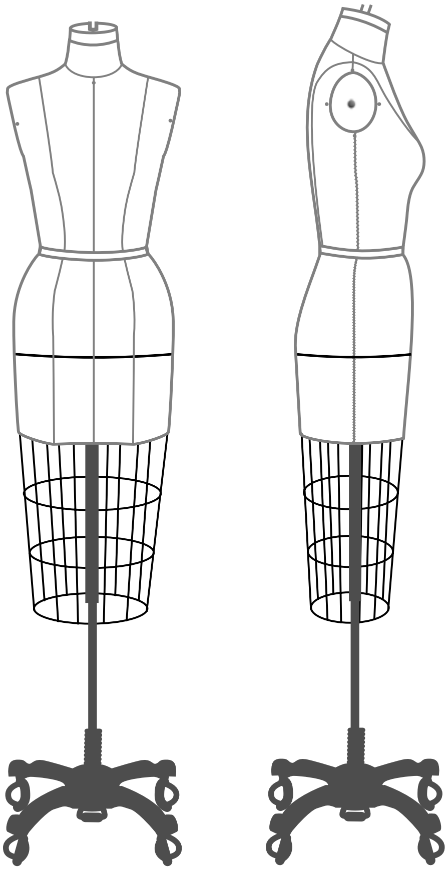
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

*Measuring the Arm

Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

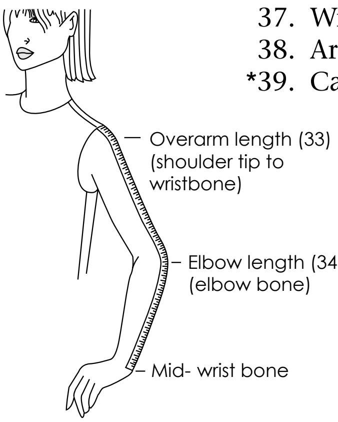
Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

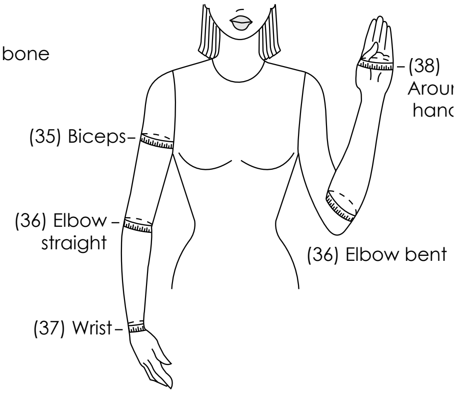
Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____

Length



Circumference



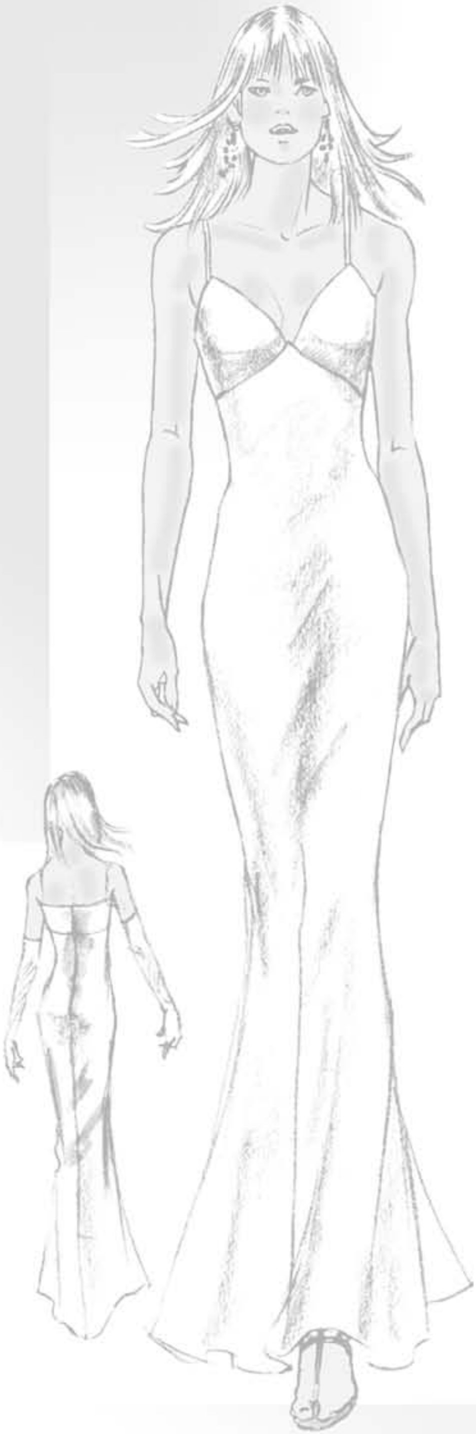
This page intentionally left blank

Patternmaking for Bias-Cut Dresses

From Chapter 20 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

Patternmaking for Bias-Cut Dresses

INTRODUCTION
NATURE OF BIAS-CUT FABRIC
PATTERNMAKING FOR BIAS-CUT GARMENTS
TWO METHODS FOR REDUCING BIAS STRETCH
FABRIC SUGGESTIONS FOR BIAS-CUT GARMENTS
SLIP DRESS WITH A SLINKY SKIRT
TWIST BODICE WITH A SLINKY SKIRT
ALL-IN-ONE BIAS DRESSES
DESIGN VARIATIONS



INTRODUCTION

Before the advent of bias-cut dresses, fashion garments required the use of girdles to harness the body. Then, the late designer Madeleine Vionnet (1876–1975), called the "Euclid of fashion," created bias-cut dresses that clung to the natural curves of the figure. As the bias fell from the hip to the hem, flares were formed at the hemline. The beauty of the bias dress was in the graceful swing of its hemline as the body was in motion. Vionnet's designs revolutionized the way women wore their clothes, and the girdle was discarded. Bias-cut dresses are timeless in style and continue to influence designers today. To replicate the essence of the Vionnet look, a system that combines drafting and draping must be considered.

NATURE OF BIAS-CUT FABRIC

1. As bias stretches in length, its width decreases.
2. The lengthwise grain and crossgrain run in opposite directions from the center of true bias.
3. The crossgrain fibers are not twisted as tightly as the fibers of the lengthwise grain and fall more easily on the bias.
4. Where the crossgrain and lengthwise grain intersect at true bias, the crossgrain side hangs longer.
5. After the bias has stretched, it does not return exactly to its original shape.

The nature of bias-cut fabric poses problems for the patternmaker. All garments cut on the bias should be test fitted to eliminate excess created by the stretch of the bias.

PATTERNMAKING FOR BIAS-CUT GARMENTS

Designs that are cut totally on the bias or partially on the bias are discussed in this chapter.

Foundation patterns that are chosen as a base to develop bias-cut garments are not reliable, but they do serve the purpose of creating pattern shapes of the design. The garment is cut and joined either by using the long stitch by machine, by basting, or by pinning in preparation for hanging overnight. The bias part of the garment will stretch beyond its original shape in fitting to the curves of the form. The garment is chalk-marked around the seamline of the form. The differences between the original lines of the pattern and the adjusted markings are trimmed from the patterns where they occur. New pattern shapes emerge from the corrections that are smaller and shorter than the originals. When cut again for the final test fit, the bias will again stretch naturally to fit the shape of the form. The instructions include two methods for managing bias and adjusting the pattern.

TWO METHODS FOR REDUCING BIAS STRETCH

Method 1—The garment is cut from the design pattern and allowed to stretch to determine the pattern corrections. The slip dress illustrates the method and management of the cutting process.

Method 2—The stretch of the fabric is determined first and the pattern is adjusted before the design patterns are developed. The all-in-one dress illustrates this method.

FABRIC SELECTIONS FOR BIAS-CUT GARMENTS

Light-Weight Fabrics

Crepe
Flat crepe
Crepe de chine
Silk
Rayon blends
Chiffon

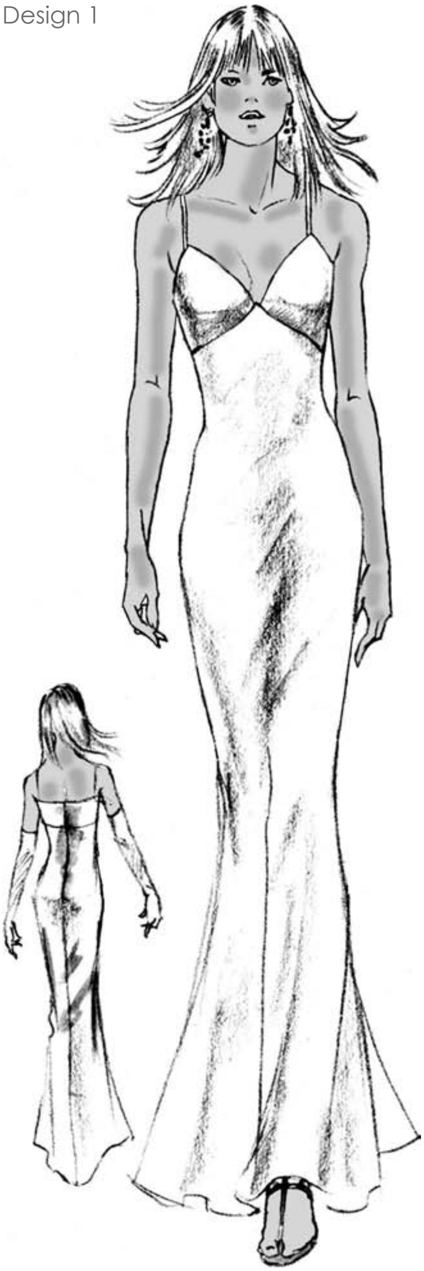
Medium-Weight Fabrics

Satin-back crepe
Charmeuse
Georgette

Stretch knits can also be used for the designs that follow.

SLIP DRESS WITH A SLINKY SKIRT

Design 1



Design 1 is the prototype for designs with flared hemlines. Additional width is added to the side seams for adjustment after the bias has stretched. (*Suggestion:* Pin drapery weights along the hemline to encourage the greatest amount of stretch.)

Design Analysis—Design 1

The dress is designed to resemble a slip. The bra is gathered under the bust, with a princess bra lining underneath for support. The empire skirt is cut on the true bias. Use the torso foundation for the design.

Pattern Plot and Manipulation

Figure 1

If you are not using the contour guide pattern, follow the pattern plot and measurement.

- Trace the front and back torso foundation.
- Transfer contour guidelines 4, 5, 6, and 7 (back).
- Draw a bust arc (3 inches) above and below the bust.
- Connect the front and back contour guidelines.
- Draw the princess bra top 1/4 inch above bust arc.
- Continue with sloping lines to the center back.

Figure 1

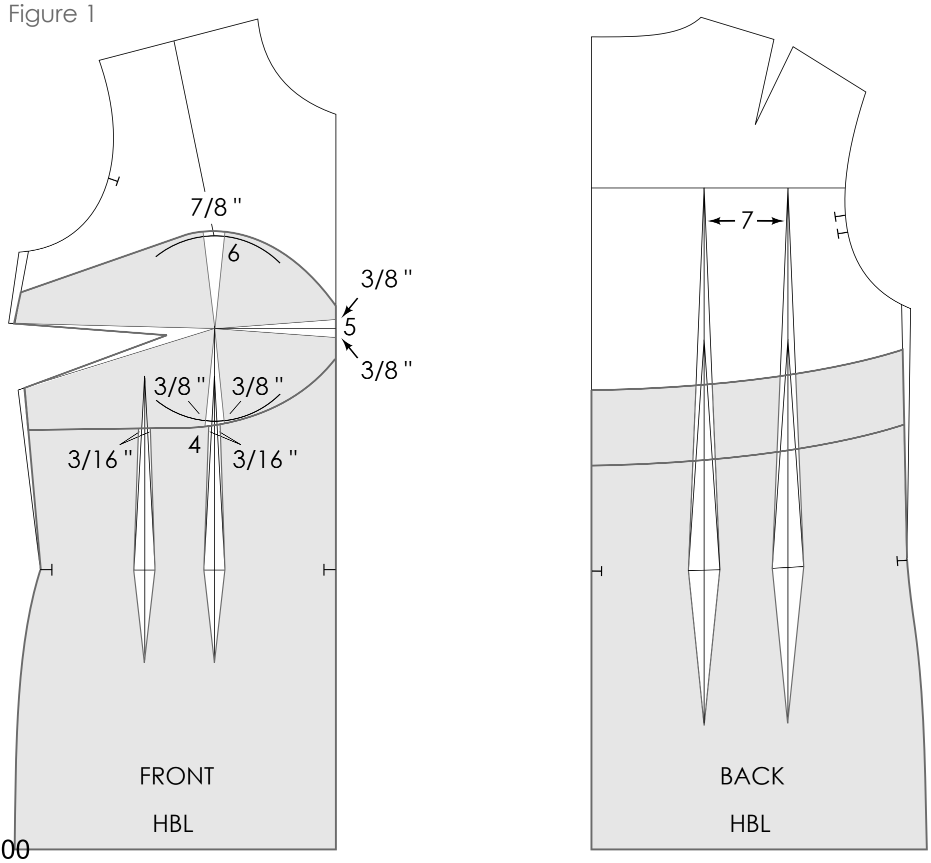


Figure 2 Bra-Top Support

- Separate the bra-top at bust point.
- Make two copies.
- Use the patterns for Figures 3 and 4.

Figure 3 Gathered Bra-Top

- Close all darts except under the bust and trace.
- Extend the dart legs 1/4 inch below bust.
- Draw curved lines under the bust. Mark notches.

Figure 4 Princess Undersupport

- Close the side and center bust darts and trace.
- Add 1/8 inch at bust points and draw outward curved lines.

Figure 5 Back Strapless Band

- Close darts and blend.

Figure 6 Front and Back Empire Skirts

- Measure intake of each dart, front and back.
- Add together, plus 1 inch. Record.
- Draw guidelines between the two darts, ending 7 or more inches below the waist.
- Mark one-fourth of the measurement out from each side of the front and back guidelines.
- Connect to the dart points.

Figure 2

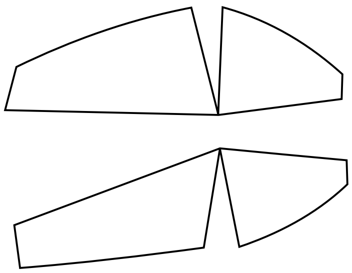


Figure 3

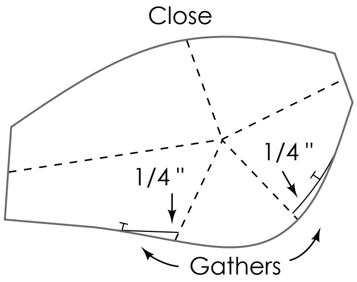

Close
1/4 "
1/4 "
Gathers

Figure 4

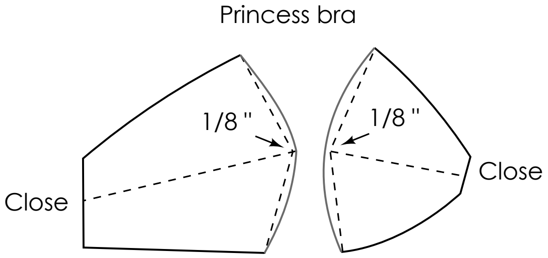

Princess bra
1/8 "
1/8 "
Close
Close

Figure 5

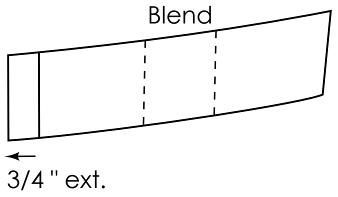
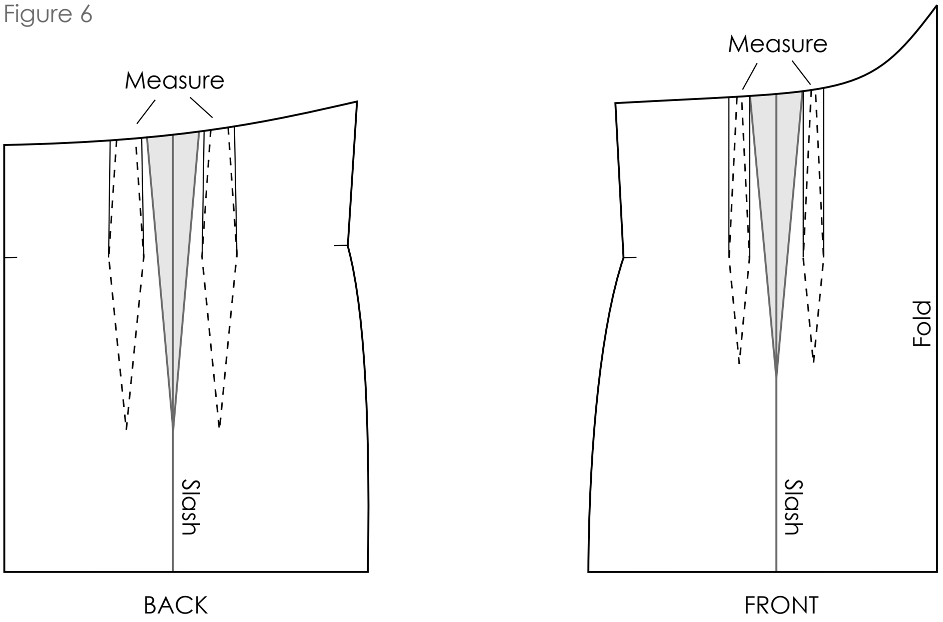

Blend
3/4 " ext.

Figure 6


Measure
Slash
BACK
Measure
Fold
Slash
FRONT

Figures 7a, b Front and Back Slinky Skirt

- Slash to dart points from waist down and hips up.
- Close the darts and trace the patterns, with the front traced on the fold. C to D is twice the A to B measurement. Mark.
- Draw side seams from the outermost part of the hip touching D and continuing to desired length. (Added length is marked parallel with the hip HBL.)

Figure 7a

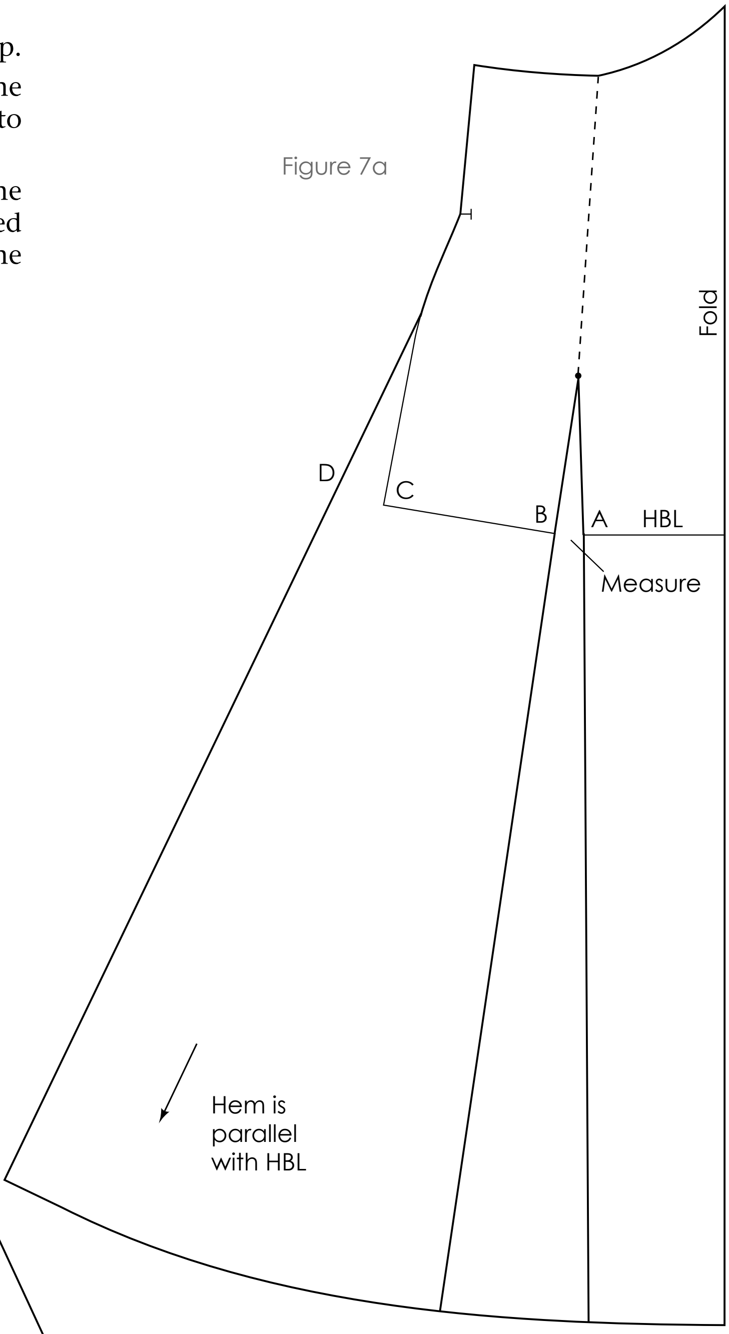
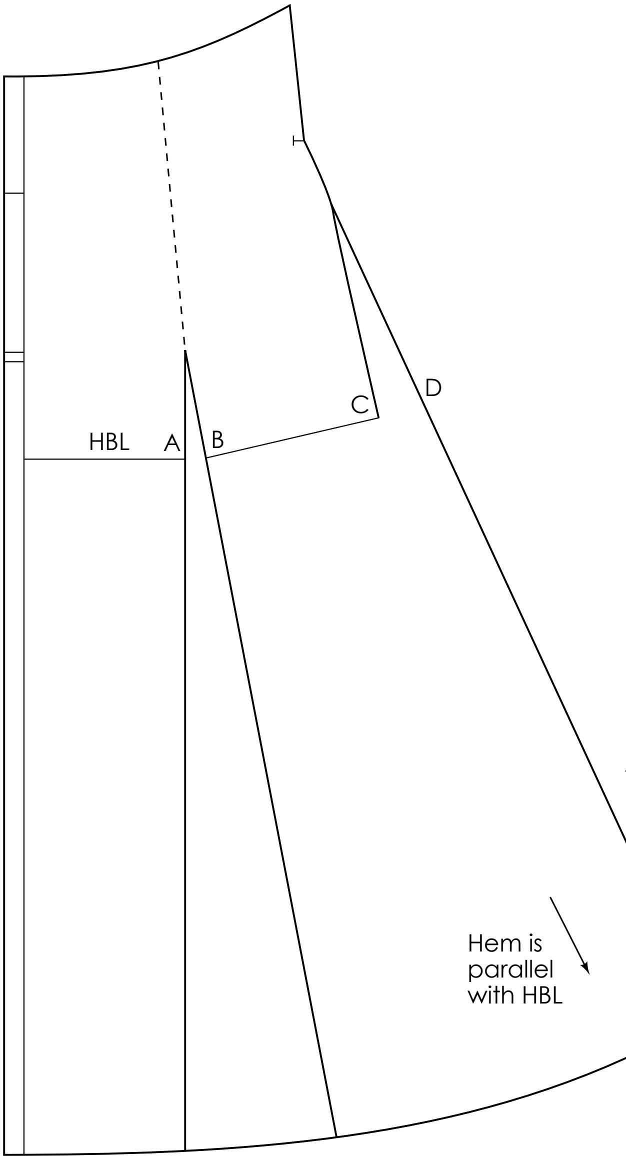


Figure 7b



Grainline Placement

The grainline of the bias skirt can be cut with the grains running in the same direction, as illustrated on the next page. This placement allows the bias grain to fall equally at the side seams. If the back is cut with the grainline running in opposite direction to the front, the back will hang at a different length. The hemline is trimmed, and the hem overhang fabric is laid on the pattern and cut. The joining seams will not true, but when stitched, the shorter, more bias, will stretch to the length of the other seam. The bra-tops are cut on the lengthwise grain.

Preparing for Cutting

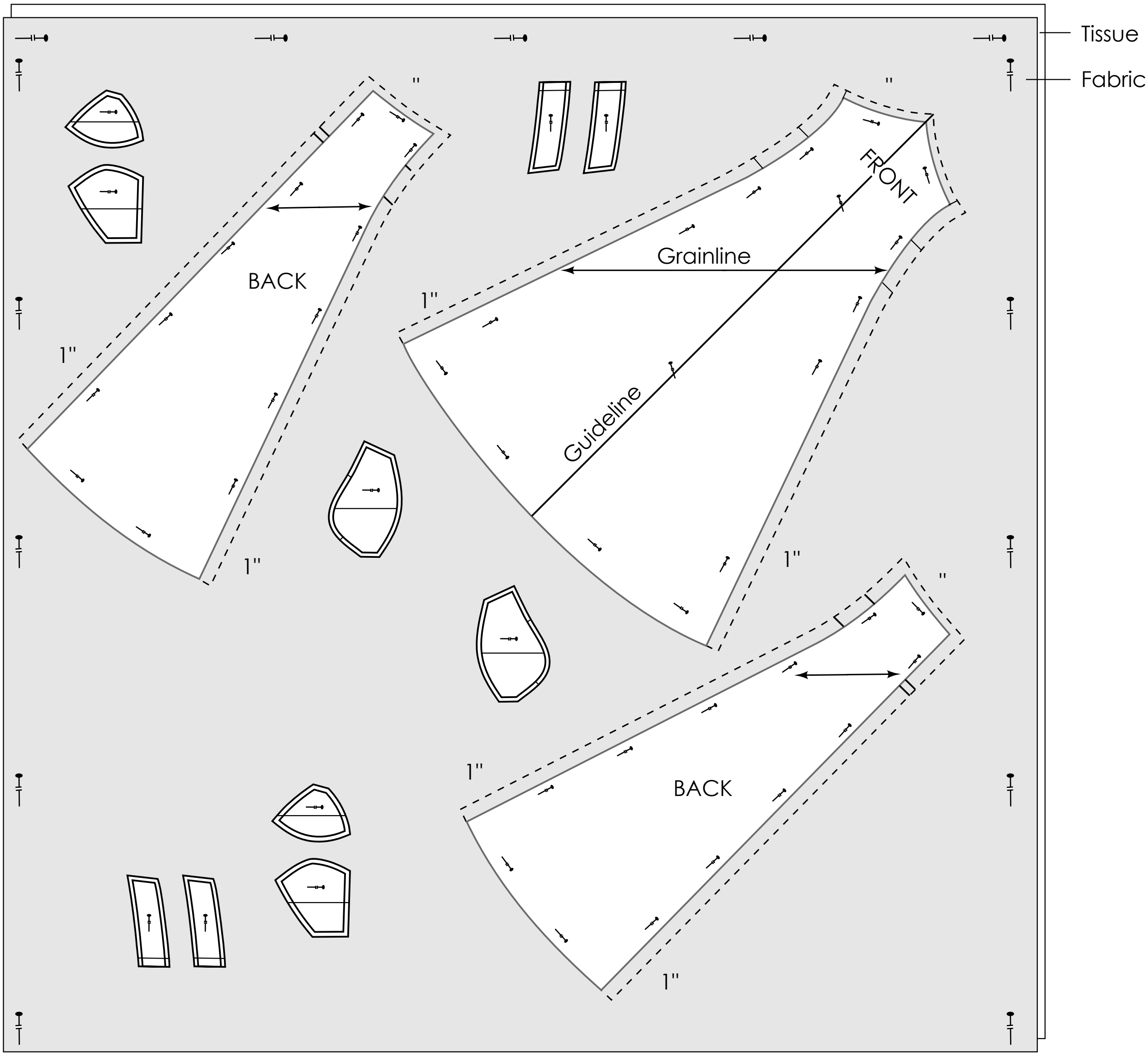
Figure 8 Patterns for First Fitting

Draw bias grainlines (45°) on front and back empire skirt patterns and mark the foldline (guideline). Mark lengthwise grain on the bra-tops. Add seams only to bra-top patterns at this time.

Lay of Tissue and Fabric for First Cut

To control the fabric while cutting, place tissue on the cutting table first. Place the fabric on top of the tissue and pin around the edges. Pin the patterns on the fabric, with grainlines parallel to selvage. Trace the skirt first, then add 1 inch seams and 1/2 inch at the empire line shown as broken lines. (The purpose is to see the amount of stretch caused by garments cut by bias.) Cut patterns and draw the center bias guideline on the front and back skirt fabric.

Figure 8



Preparing for the Test Fit

Figure 9

- Sew the front and back bras.
- Pin skirt from center to side seams. Allow to stretch; the bias will go beyond the side seams. Stitch the bra-top to the front and back slinky skirt separately.
- Place the garment on the form. Pin the center guideline to the center front of the form and do not allow it to move from that location when fitting the garment.
- Raise the form to prevent the skirt from touching the floor.
- Pin the side seam (not too closely at the side waist), ending 6 inches below the waistline. Clip where shown.
- The unpinned seamline will allow the bias to stretch freely overnight. (*Suggestion:* Pin weights along the hemline.)

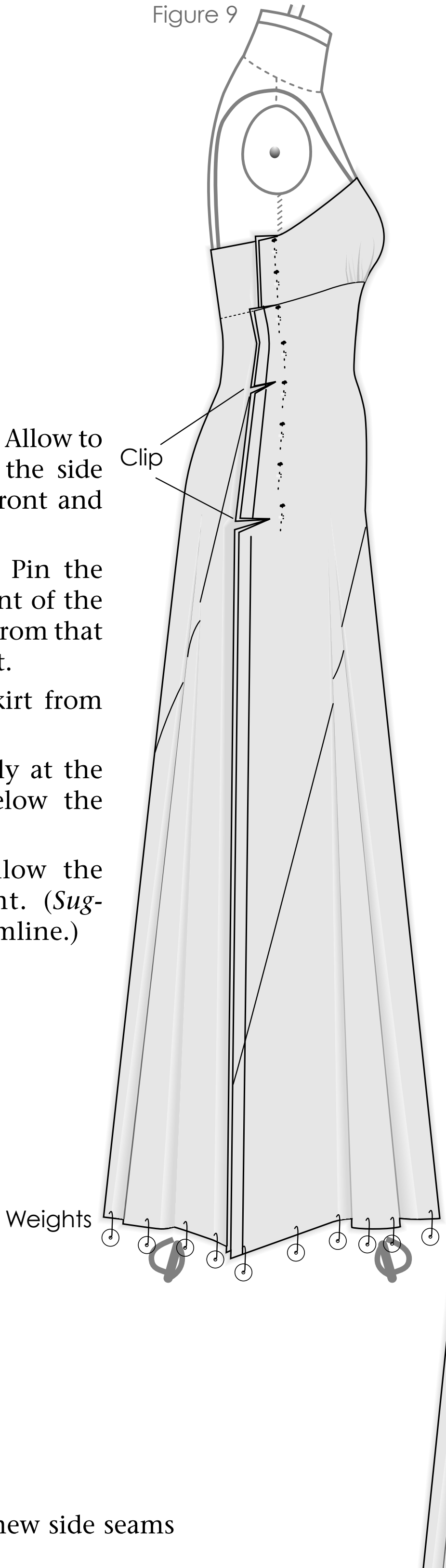


Figure 9

Figure 10

After the garment has hung overnight,

- Adjust, pin, and chalk-mark the new side seams and hem.
- The hemline is pin marked parallel with the floor.
- The garment is removed from the form.
- Release the bra section from the skirt.
- Unpin the side seam and true the new seam lines.

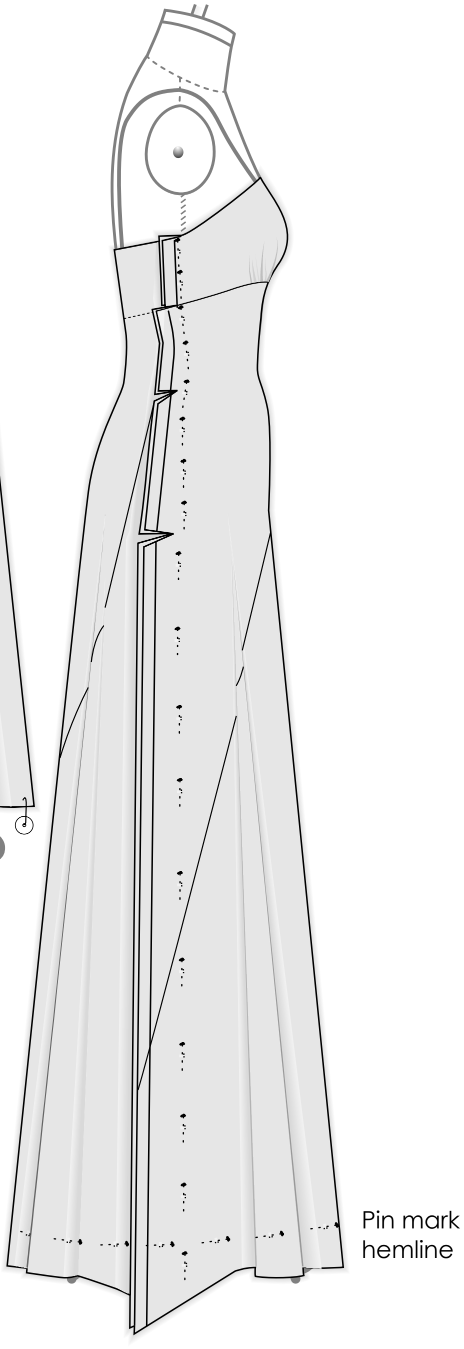


Figure 10

Adjusted Side Seam

Figure 11

- Measure the distance from the original seamless pattern to the chalk line.
- Use measurement to pin mark the opposite side of the chalk line at the side seam and hemline.
- Repeat for the back skirt (not shown).
- True and blend seamlines and match joining seams.

Figure 12

- Fold paper and draw the bias grainline.
- Place one side of the draped skirt on paper, aligning grainlines and center line and secure.
- Trace on the new side seam and hem.
- Remove the drape, pencil in, and add 1/2-inch seams at empire line, 3/4 inch at side seam and hem.
- Cut from the paper.

Figure 11

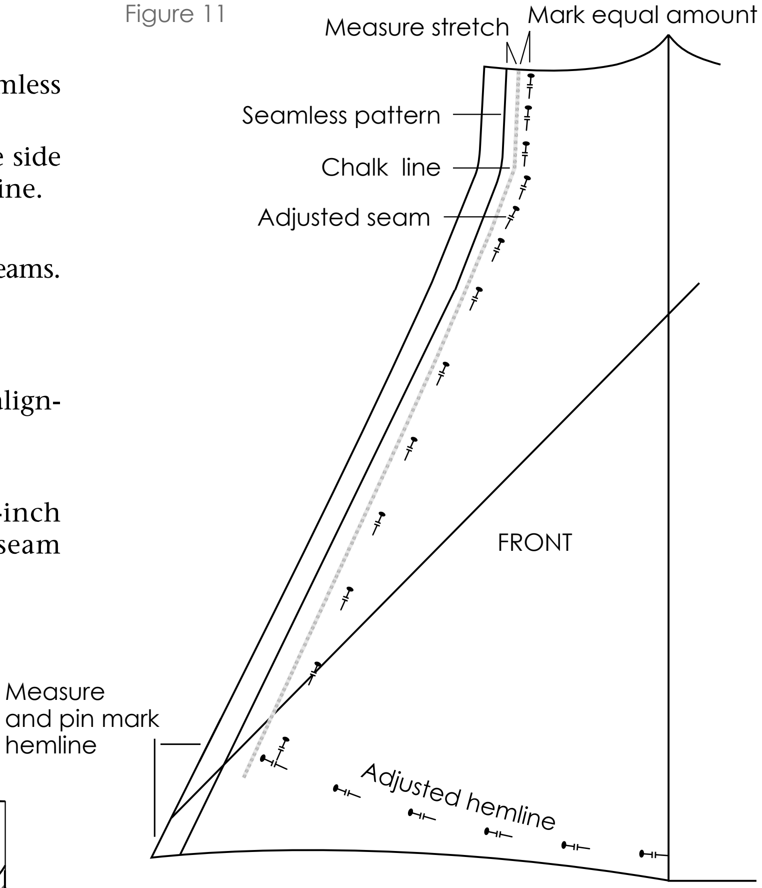
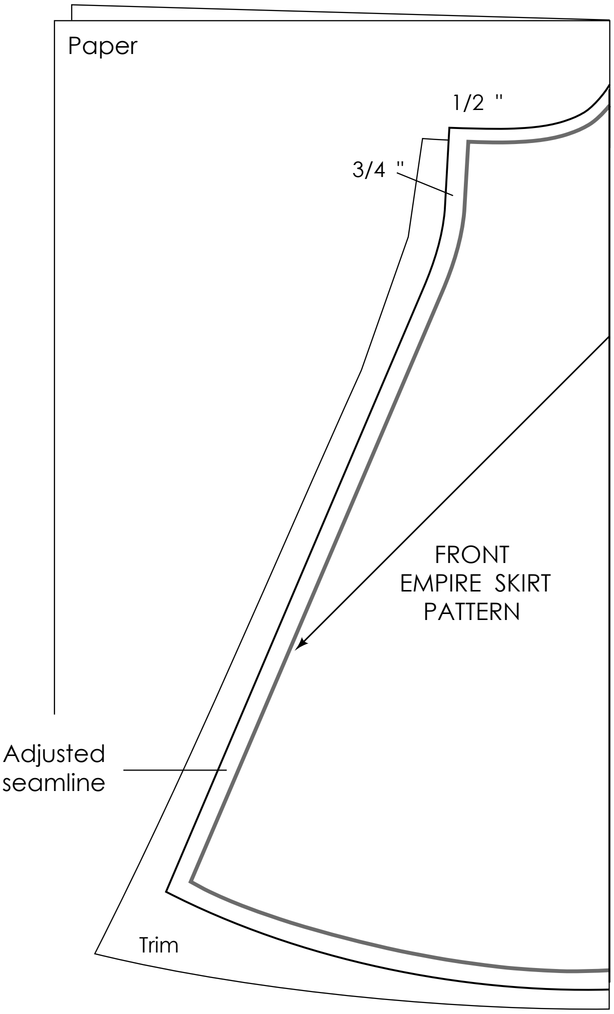

Measure stretch
Mark equal amount
Seamless pattern
Chalk line
Adjusted seam
FRONT
Measure and pin mark hemline
Adjusted hemline

Figure 12

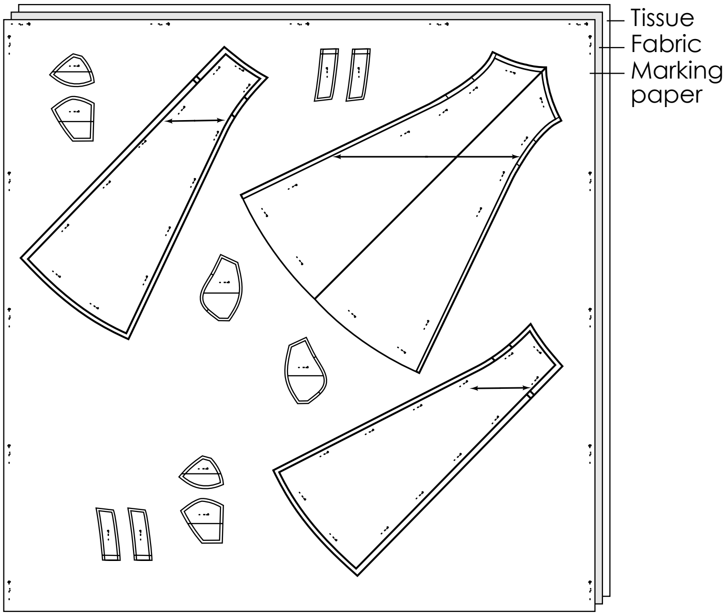

Paper
1/2 "
3/4 "
FRONT
EMPIRE SKIRT
PATTERN
Adjusted seamline
Trim

Recut for Final Fit

Figure 13

- Trace patterns on marking paper.
- Lay tissue first, fabric second, and marking paper on top, as shown. Cut for second fit.

Figure 13

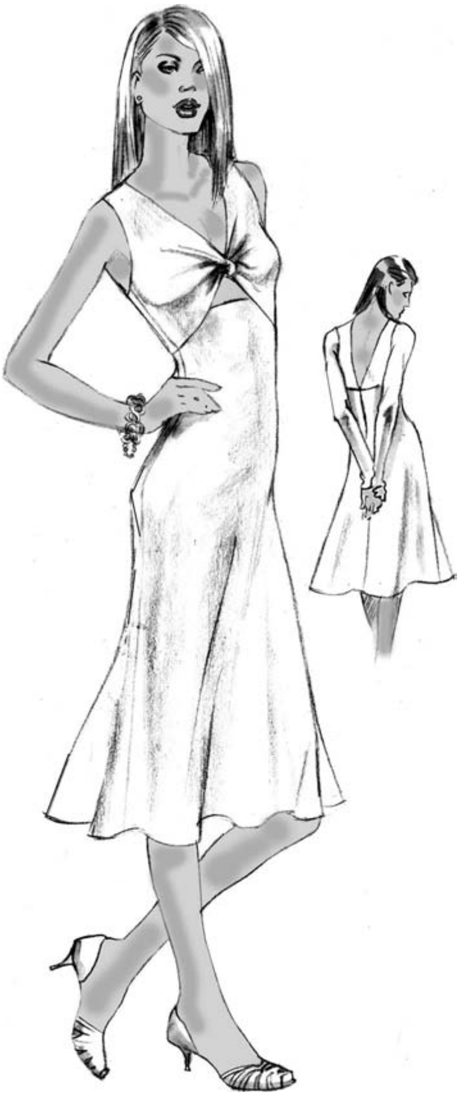

Tissue
Fabric
Marking paper

TWIST BODICE WITH A SLINKY SKIRT

The bodice twist closely relates to a design by Vionnet. The dress slips over the shoulder without a closure. The cowl is also excellent for this purpose.

Design Analysis

The bodice twist is cut on the true bias. The twist turns at bust level so that the other side ends right-side-up. An open space between the slinky and the bodice gives freedom for the turning of the twist. The twist design is plotted on the pattern. See Figure 8a, two pages ahead, to vary the skirt design.



Pattern Plot and Manipulation

Figures 1, 2

Front

- Square a line from the center to bust point (X) and follow the illustration to plot the design.

Back

- Mark (X) 2 inches up from the center back waist and follow the illustration to plot the design.
- To complete the skirt, see section on Slip Dress with a slinky skirt, Figure 6 and Figure 7.

Figure 1

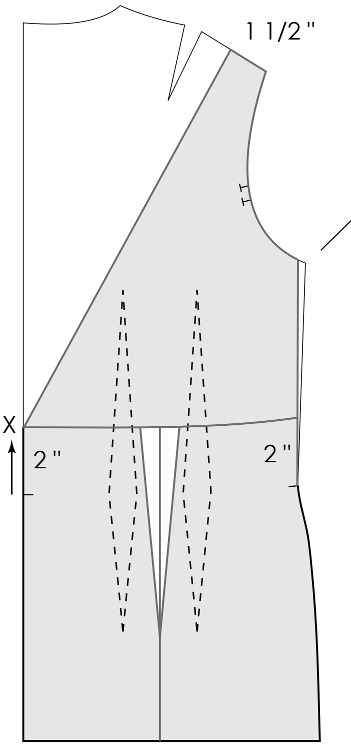


Figure 2

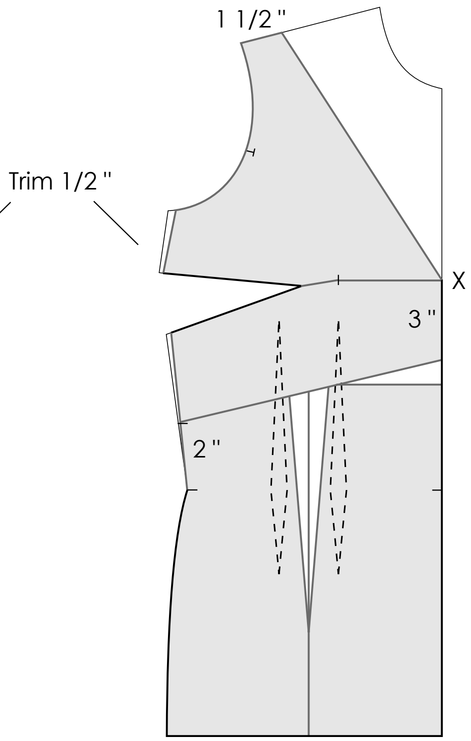


Figure 3 Twist

- Slash to bust point and close side dart.
- Trim the side ease and trace the pattern.
- Square to shoulder from fold at center front line.
- Cut front on the fold. Draw the bias grainline.
- Cut in fabric for a test fit.

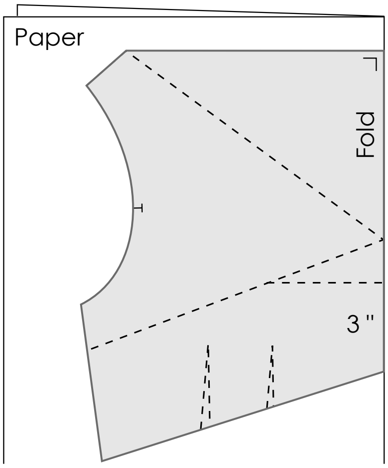


Figure 3

Figure 5

- Place the twist to the right shoulder and pin at the shoulder and at the side seam.
- Fold pleats in the fabric (in line with the center front) and twist the fabric under and over so that the right side of the fabric is to the left side of the form. Pin to the shoulder and side seam of the form.

Figure 6

- If the twist is too loose, reduce the needed amount from the center front of the pattern. Check the total fit and make any additional correction where needed.

Hang skirt overnight and adjust the pattern. Pin, baste, or stitch the skirt to the twist for a final test fit.

Figure 4 Back Empire Top

- Remove the dart intake at center back and end at the mark of the shoulder.
- Cut from the paper and trim side ease and shoulder.
- Draw the grainline parallel to the V-neckline.

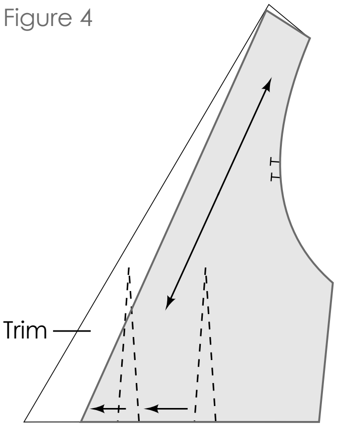


Figure 4

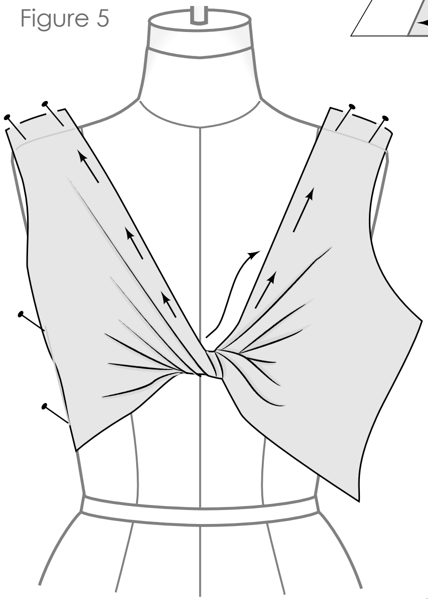


Figure 5

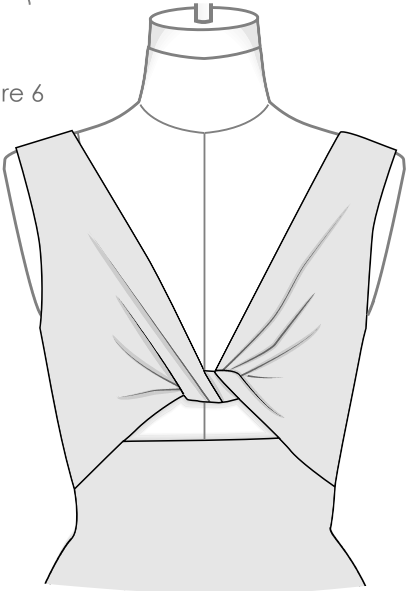
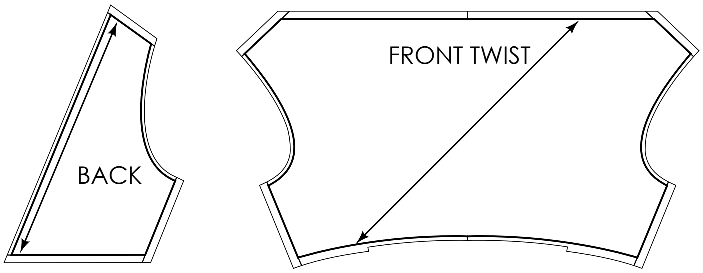
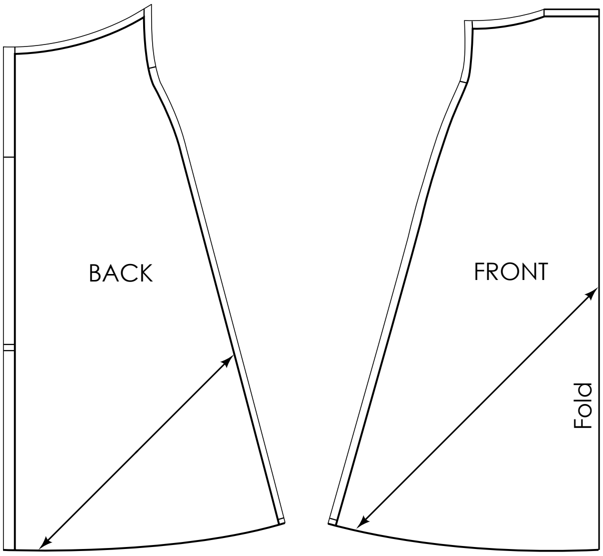


Figure 6

Figure 7
The completed patterns are illustrated. The raw edges of the twist can be merrow edged or can be stitched as a baby-roll hem.

Figure 7


BACK
FRONT TWIST


BACK
FRONT
Fold

Additional Information

Figures 8a, b
Create designs with as few bias seams as possible. Styleline(s) should be placed on the lengthwise grain and crosswise grain to simplify sewing (Figure 8a).

Stylelines cut on the lengthwise grain or crosswise grain can pass over the front and back side seams by overlapping the seams, making the styleline one piece. Each section is cut separately.

Partial side seam: Overlap front and back side seams until they merge. A side dart will remain in the pattern for a closer fit (Figure 8b).

Long pattern pieces cut on the bias require wide fabrics.

Figure 8a

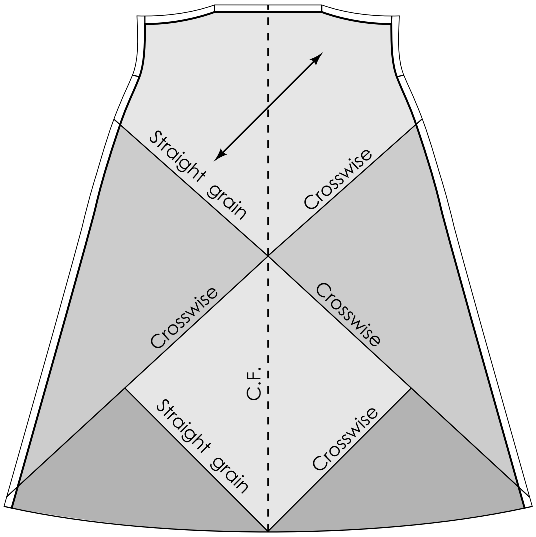
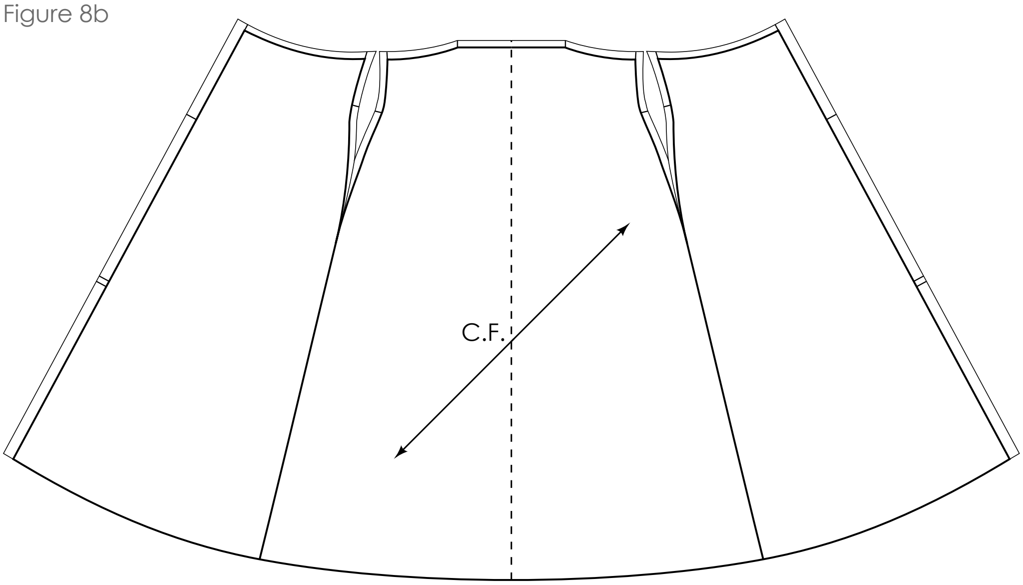
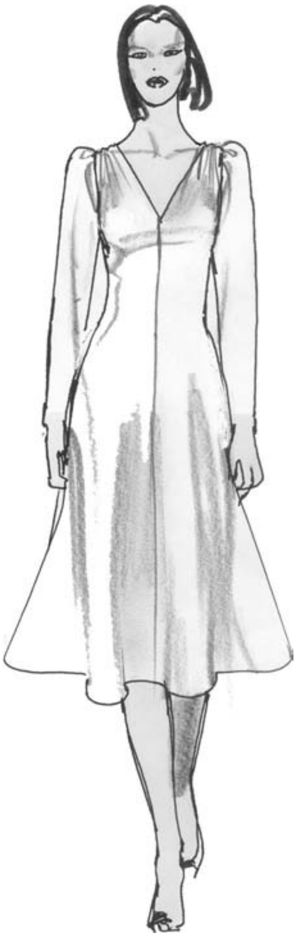

Straight grain
Crosswise
Crosswise
Crosswise
C.F.
Straight grain
Crosswise

Figure 8b



ALL-IN-ONE BIAS DRESSES

The second method for handling garments cut on the bias is illustrated with the all-in-one dress. (However, any design cut on the bias can be adapted to this method.) The difference between this method and Method 1 is that the stretch of the bias is determined first and then the pattern is modified before the design pattern is developed. This does not mean that the garment will be a perfect fit. The garment must hang overnight and all seams must be checked for the amount of fit desired.



Design Analysis

The bias-cut dress has a flared skirt with center line seams. The shoulderline is gathered and the neckline has a V-cut.

Determining the Bias Stretch

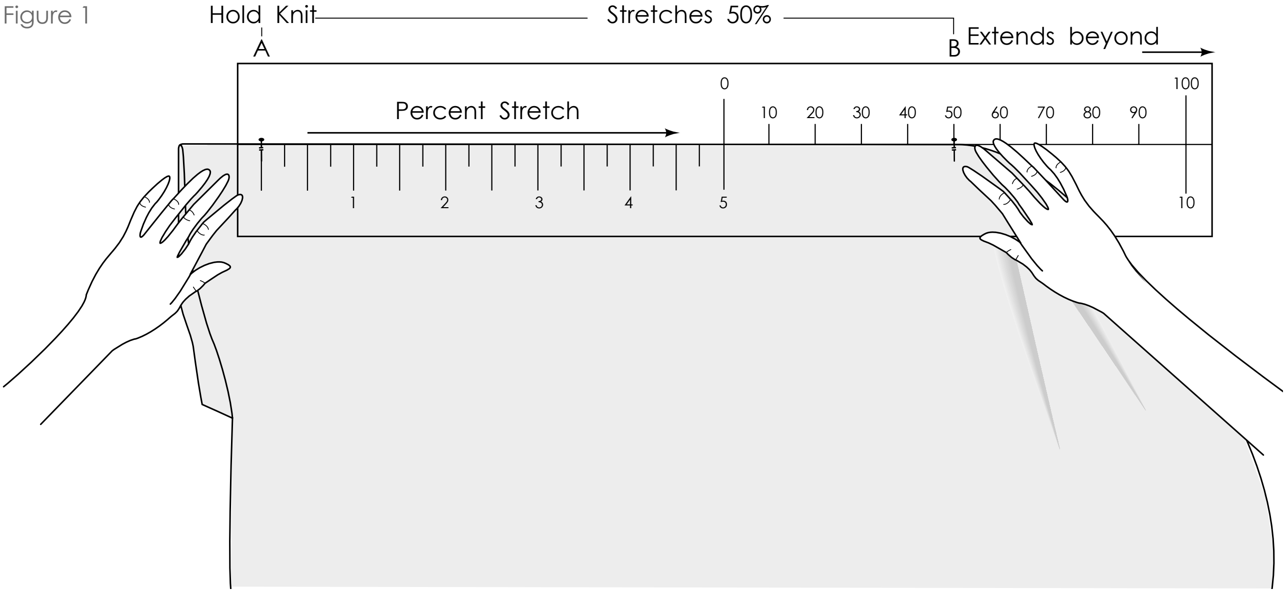
Figure 1

Measurement needed: Back hip arc (23). Example: 9 inches for front and back patterns.

- Fold the fabric on true bias and pin mark the hip arc measurement (A to B).
- Lay the fabric on the ruler with pin mark (A) secured at the 1-inch point.
- Smooth the bias across the ruler. Record the distance that the fabric has stretched beyond the hip measurement. This amount is to be removed from the center lines of the pattern to offset the bias stretch.

The amount of bias stretch will vary according to the nature of the fabric. (For example, chiffon may stretch more on the bias than satin-back crepe.)

Figure 1



Pattern Plot and Manipulation

Figure 2a, b, c, d

- Trace the torso patterns, transferring the side dart 1 inch from the shoulder tip.
- Draw a V-neckline 1 inch up from bust level and ending 1 inch from the shoulder dart. (2a)
- Draw the back neckline. To eliminate remaining dart excess, trim the shoulderline. (2b)
- Draw parallel lines at center front and back equal to the amount of the bias stretch (indicated by the broken lines).
- Draw the front and back curved center lines, at the adjusted center lines, as illustrated.

Adding Flare

- Extend skirt to the desired length.
- Add flare starting about 7 inches below waistline of the center back, front, and side seams, and ending 5 inches out from side seam at hem.
- Add 1-inch seams to the patterns.

  See preparing for cutting, preparing for testfit, and adjust side seam sections earlier in this chapter for guidance in preparing the fabric, cutting, and draping.

- Leg-o-mutton sleeve (2c, d).
  Follow illustration for guide.

Figure 2a

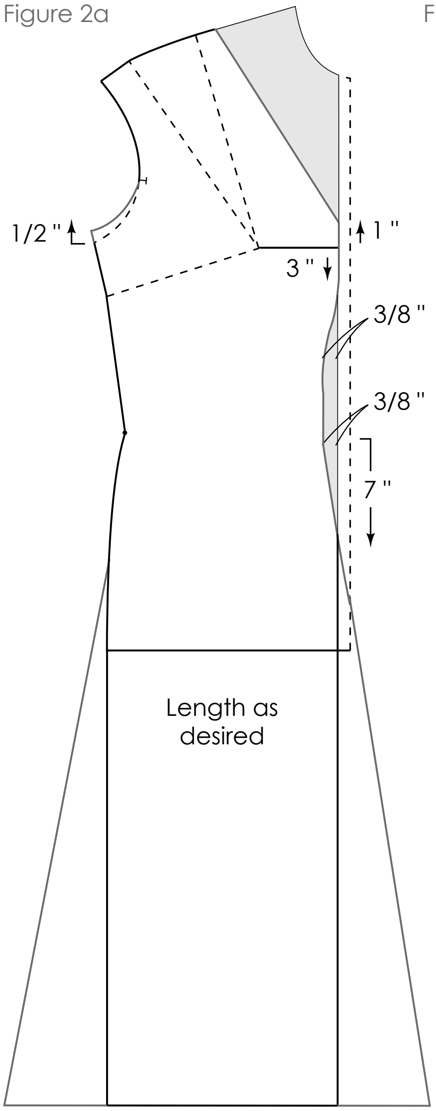


Figure 2b

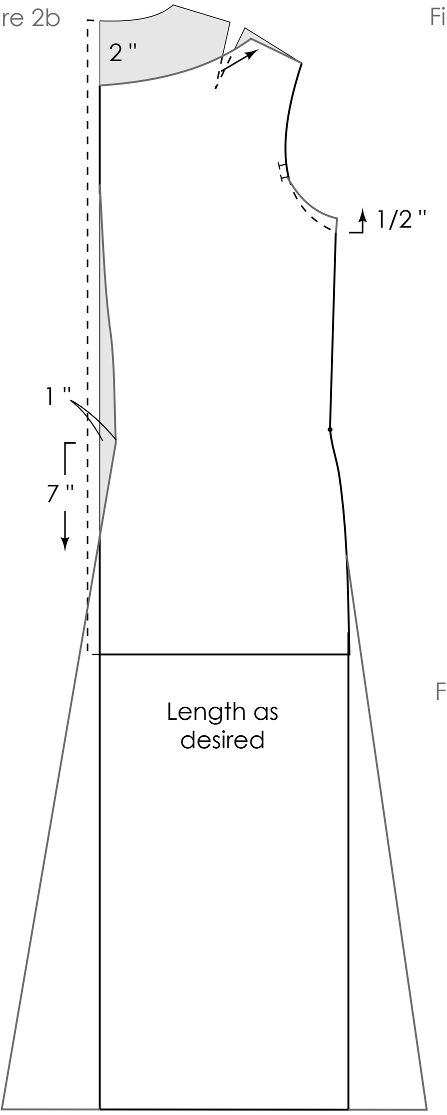


Figure 2c

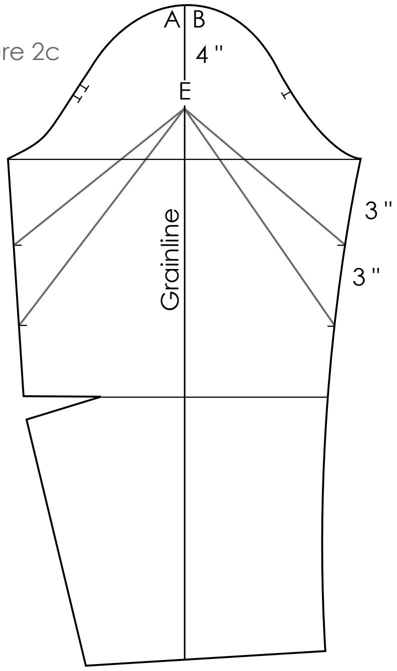
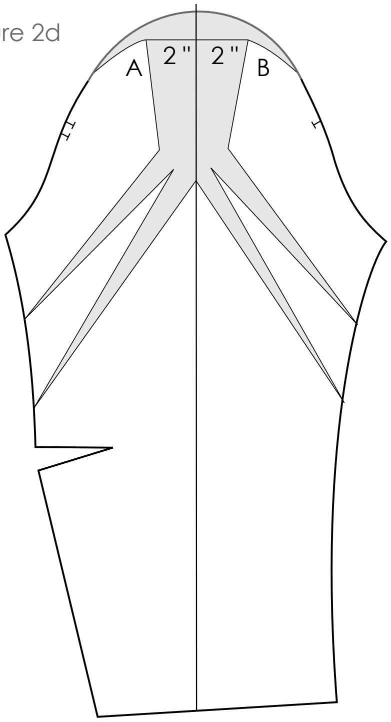
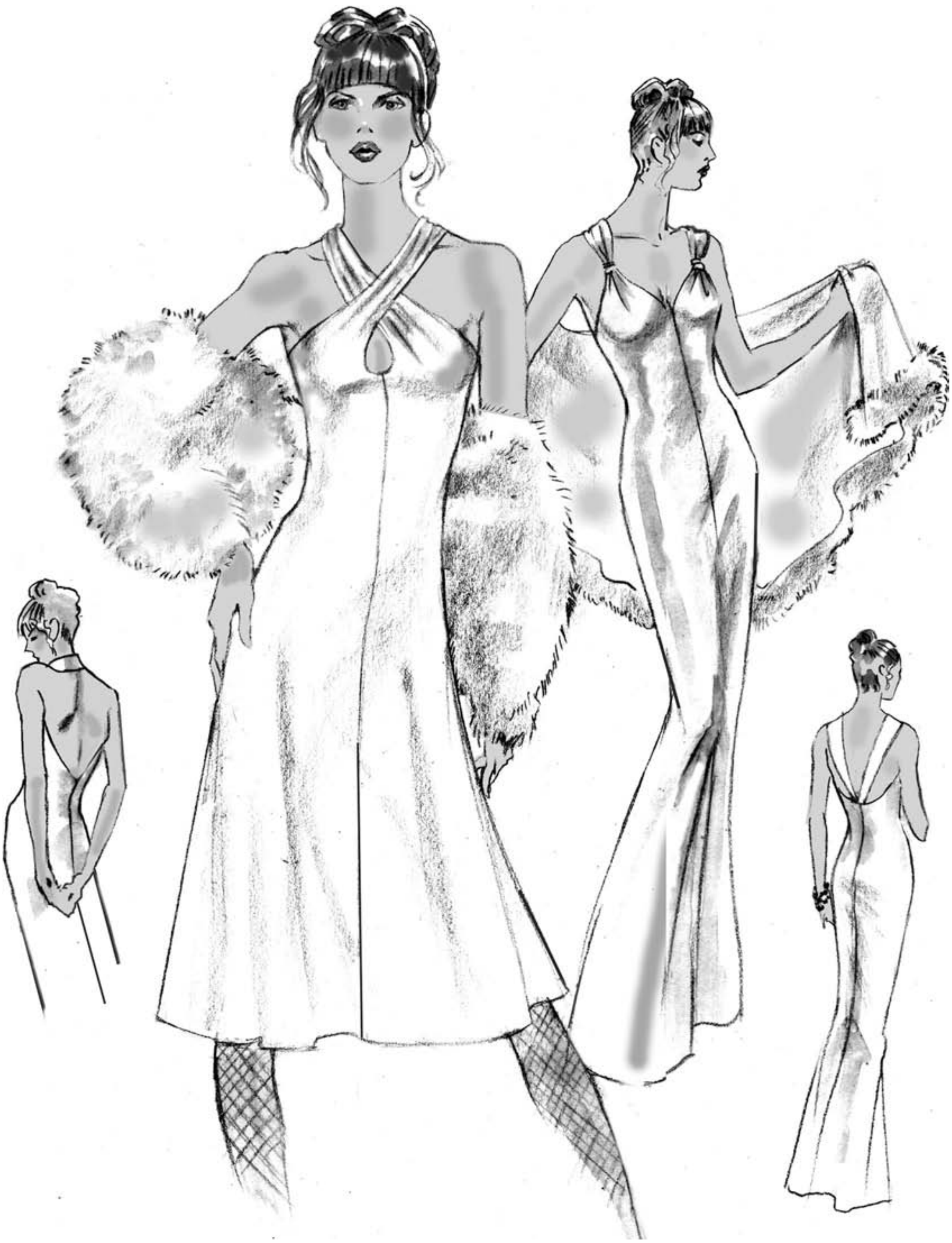


Figure 2d



DESIGN VARIATIONS

The designs illustrated are for further practice and for design inspiration.



FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

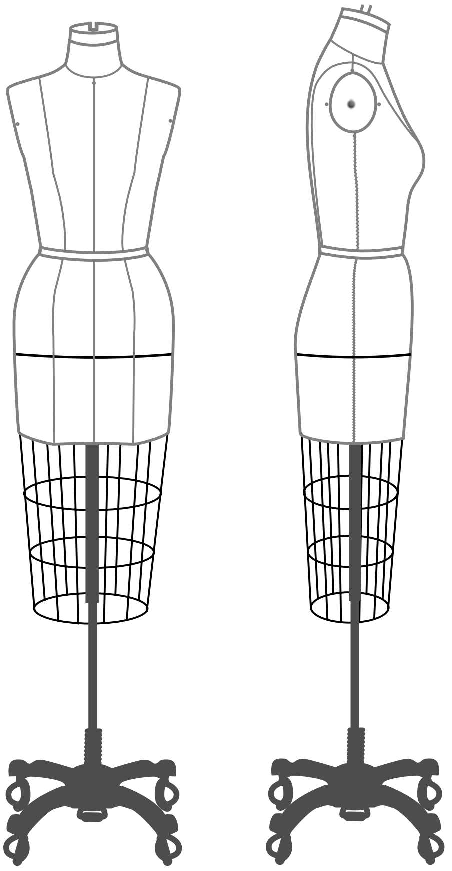
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

*Measuring the Arm

Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

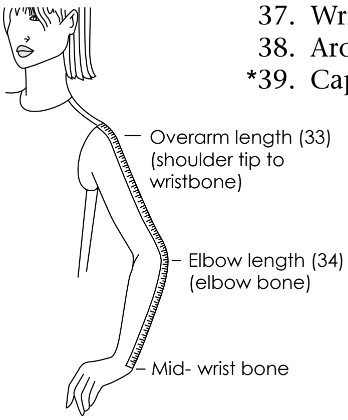
Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

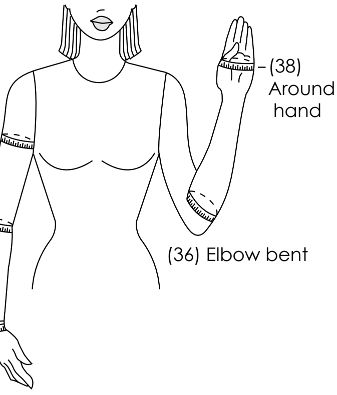
Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____

Length



Circumference



This page intentionally left blank

Shirts

From Chapter 21 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

Shirts

SHIRT AND BLOUSE FOUNDATIONS

- Three Shirt and Blouse Foundations
- Basic Shirt and Blouse Draft
- Basic Shirt Sleeve Foundation
- Yoke Shirt
- Sleeve Hemline Options
- Closure Options
- Shirt Facing and Band Variations
- Hidden Button/Buttonhole Closure

CASUAL SHIRT AND SLEEVE FOUNDATION

- Casual Shirt Draft
- Oversizing the Shirt

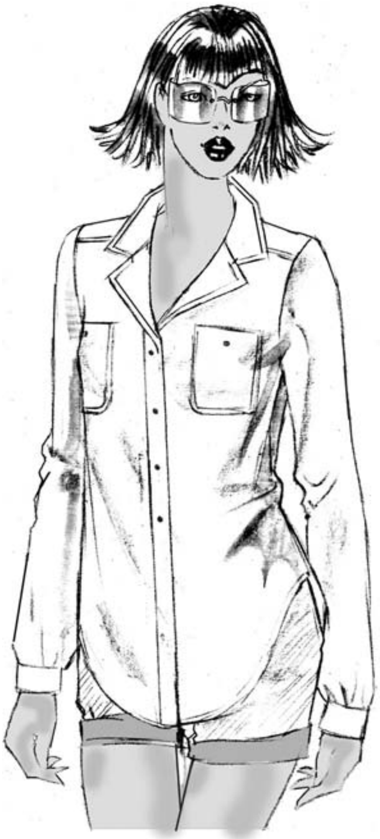
PEASANT BLOUSE

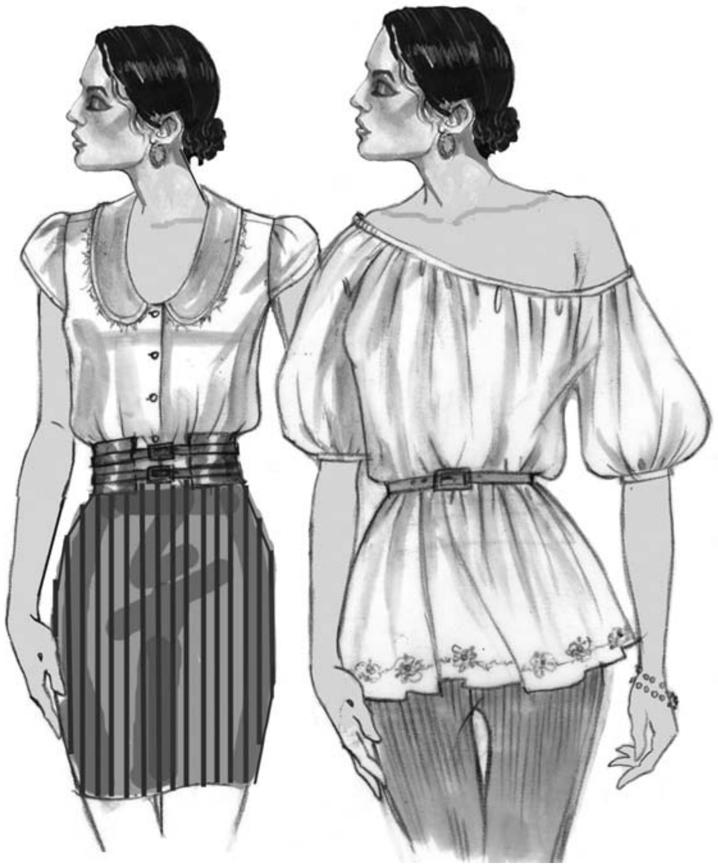
SHIRT AND BLOUSE FOUNDATIONS

Shirts and blouses, even though different by design, are both worn with skirts and pants. Shirts have a tailored, masculine look; blouses have a feminine touch. But there are similarities. The armholes of shirts and blouses are placed at varying depths below the plate of the form. The armhole is made larger by transferring some or all of the shoulder or dart excess to it. The larger armhole requires changes in the basic sleeve to accommodate the new armhole.

Shirt and blouse foundations can be based on the bodice (waist and shoulder dart) and basic back patterns or the torso foundation. Stylelines, yokes, tucks, added fullness, collars, pockets, cut-out necklines, combinations, and a variety of sleeve designs (especially for blouses) add variations to these foundations. Shirts and blouses that fit closer to the body use the basic torso foundation as the base without being made larger.

Shirts and blouses become dresses by extending the length of the foundation patterns.

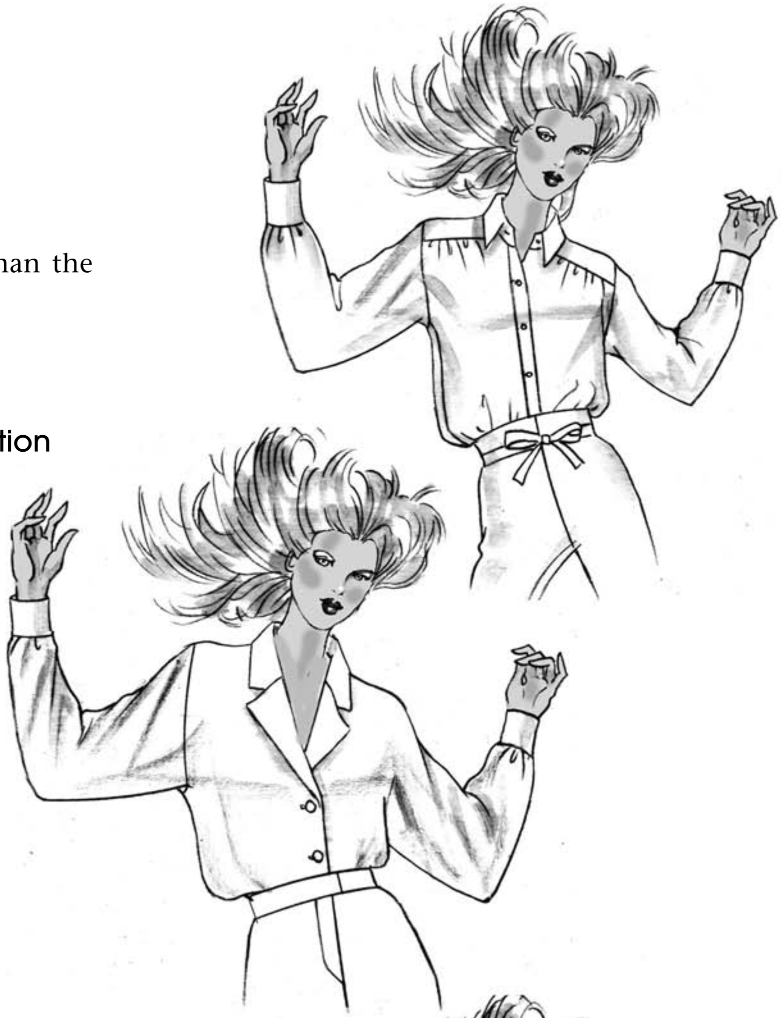




Three Shirt and Blouse Foundations

Each of the foundations has distinctive features. They differ in the following ways: the amount of fullness given to the shirt or blouse foundations, the depth and amount of enlargement of the armholes, and the modifications of the basic sleeve—wider biceps, shorter cap height, and increased length given to the underarm (for lift).

The body shirt is based on the basic torso foundation, and the empire torso for special shirt or blouse designs.



Basic Shirt or Blouse Foundation

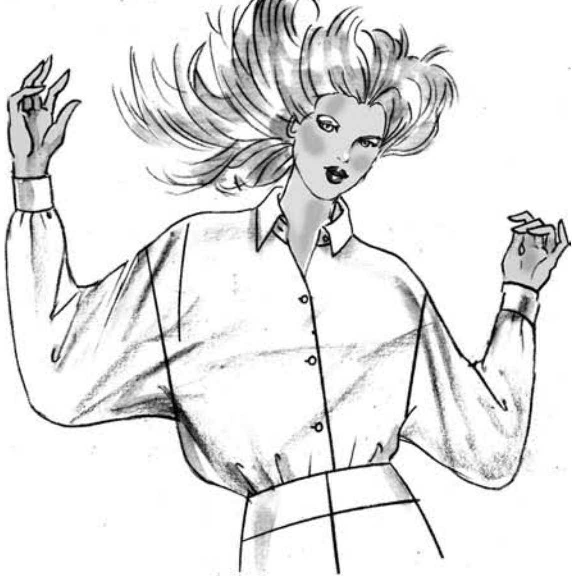
The armhole is slightly lower and wider than the basic torso and basic sleeve.

Casual Dartless Shirt or Blouse Foundation

The armhole depth and fullness are much greater than in the basic shirt.

Oversized Dartless Shirt or Blouse

The armhole depth and fullness are greatly exaggerated.



Basic Shirt and Blouse Draft

The shirt and blouse foundations are drafted with similar characteristics: lowered armhole and ease added to side seam. The measurements given can be reduced for a closer body fit. The draft can be based on the waist dart, or two-dart front, and the back bodice. The basic sleeve is modified to fit the armhole. (A body shirt is based on the torso shirt foundation; do not modify as shown.)

The basic sleeve (modified) completes the foundation.

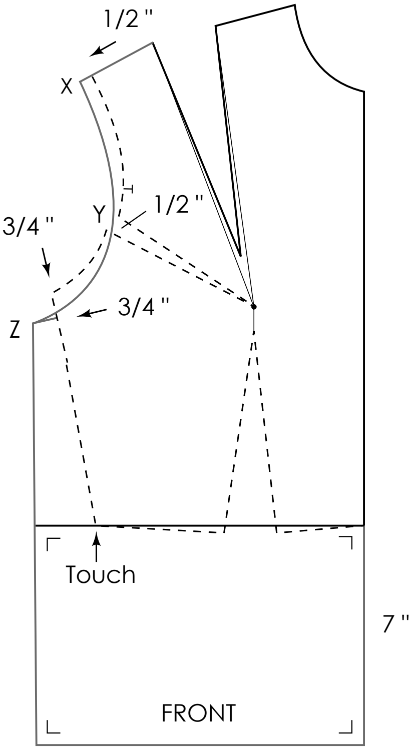
Front

Figure 1

Modification to the basic bodice

- Trace and draw slash lines from bust point to mid-armhole, and mid-shoulder.
- Square a line on paper (center line and waist level).
- Slash, lines from mid-armhole and mid-shoulder to bust point.
- Align the pattern in the square with front corner and side waist touching waist level. Pin to secure.
- Share 1/2" of the excess at mid-armhole (Y) and the rest at mid-shoulder. Some dart excess is left at waist level. Trace.
- Extend shoulder 1/2" (X).
- Mark 3/4 inch down and square out 3/4 inch from the armhole (Z).
- Draw armhole curve as shown.
- Extend center line 7", square across, and square up to touch Z. Label front (shirt/blouse).

Figure 1



Back

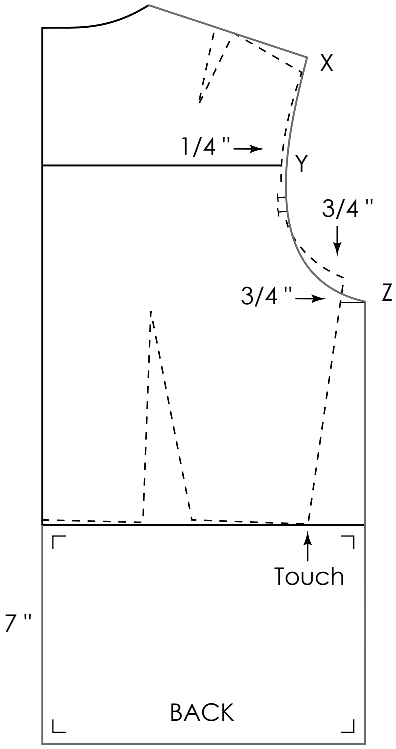
Figure 2

- Trace back bodice.
- Draw shoulder line past the dart (X).

  (Dart excess is now part of the shoulder length.)
- Mark 1/4 inch out from mid-armhole (Y).
- Mark 3/4 inch down and out from armhole (Z).
- Square a line from center back touching side seam at waist. (Center back waist may not touch square line.)
- Continue center back line 7 inches from the square line.

  Square across torso line and square up to (Z).
- Draw armhole, blending through (Y).
- Cut from paper. Label: Back (shirt/blouse).

Figure 2



Basic Shirt Sleeve Foundation

Shirt and Blouse Sleeve

The sleeve draft can be based on the basic or dartless sleeve. The sleeve is modified to fit the enlarged and lowered armhole. To select the desired sleeve entry and closure, refer to Sleeve Hemline Options section later in this chapter.

Figure 1 Basic Shirt Sleeve

- Trace the basic sleeve (broken line is the original sleeve).
- Extend biceps 3/4 inch at each end.
- Mark 1/2 inch down from the cap height.
- Shape the cap using the French curve. The cap ease should measure 1/2 inch more than the armhole. Add to or subtract from the biceps line to adjust fit.

Figure 1

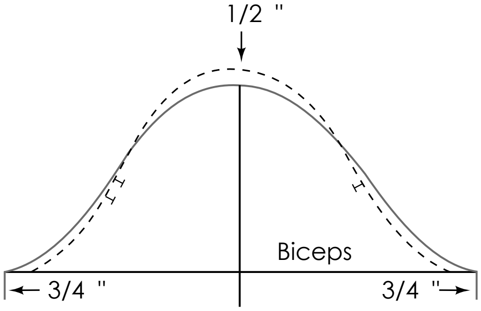


Figure 2

Square a line from the center grainline, touching corner of the right side of the sleeve. Continue to the back sleeve (eliminates the elbow dart).

A to B = One-half of biceps, less 1 inch. Mark and draw a line to biceps.

A to C = Repeat A to B instructions.

C to D = 2 inches. Draw line parallel with B–C. Label E.

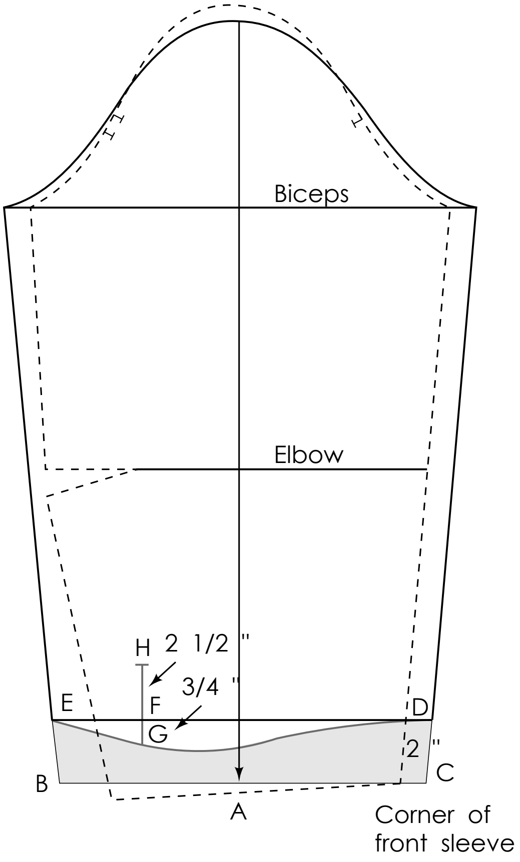
Hemline Shape

E to F = Center to the grainline. Mark.

F to G = 3/4 inch squared down from F.

G to H = 2 1/2 inches. Crossmark (slit for placket and entry). Draw the hemline curve from E to G to D, as illustrated.

Figure 2

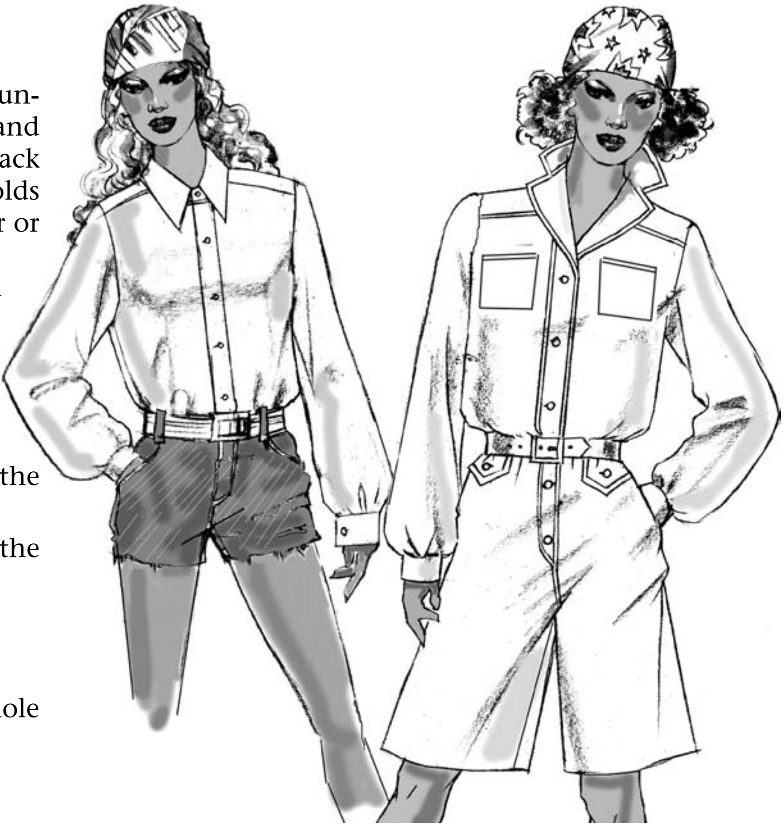


Yoke Shirt

Design Analysis

The yoke shirt design is based on the shirt foundation. If unavailable, refer to Basic Shirt and Blouse Draft section two pages back. The back yoke extends 1 inch to the front shirt and holds gathers. The basic shirt sleeve and basic collar or collar with stand completes the shirt.

The back yoke can be of any design; several versions are given. Figure 1a is illustrated.



Yoke Shirt Draft

Figures 1a, b, c

- Trace back shirt foundation and place the front shoulder to the back shoulder.
- Trace 1 inch of the front shirt to complete the yoke.
- Mark notches as illustrated in Figure 1a.

Yoke Design Choices

- Square a line from center back to mid-armhole (basic) (Figure 1a).
- Draw a zigzag yoke design (Figure 1b).
- Draw a soft curved yoke (Figure 1c).

Figure 1 a

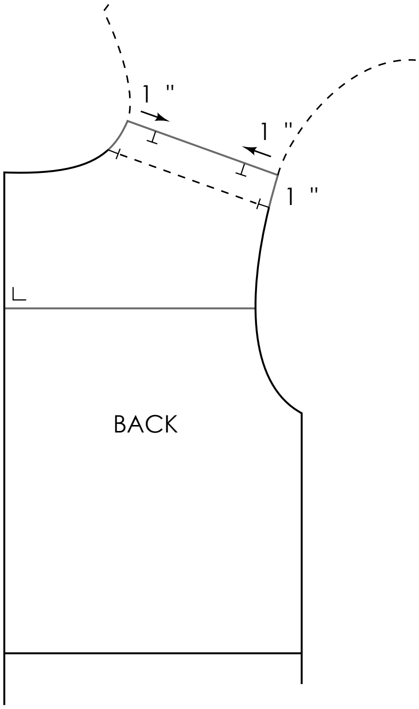


Figure 1b

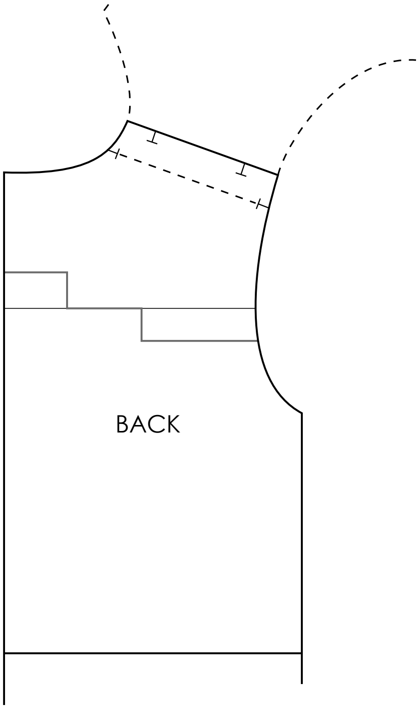


Figure 1c

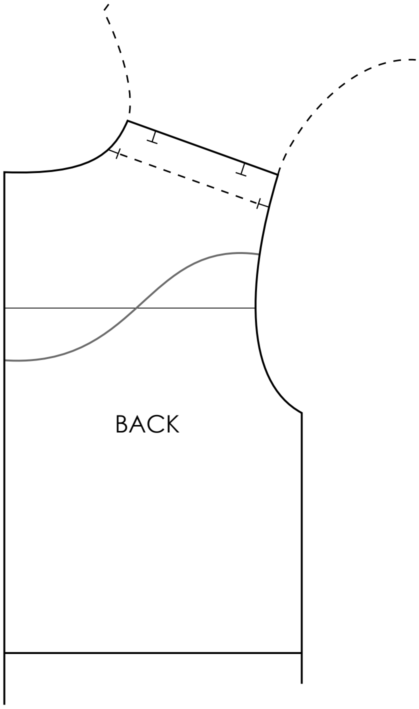


Figure 2 Yoke and Back Patterns

- Cut yoke from the pattern.
- Draw the side seam and hemline curve.

Figure 2

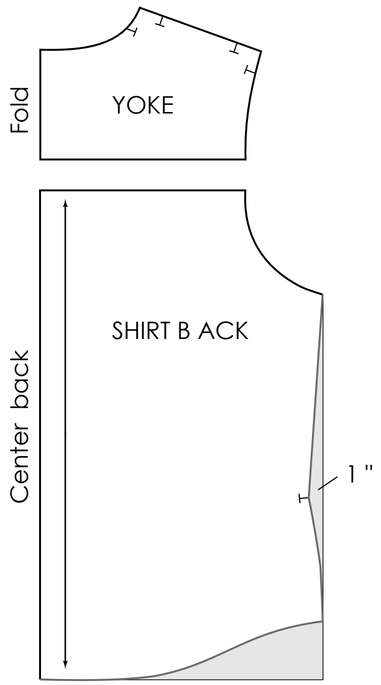
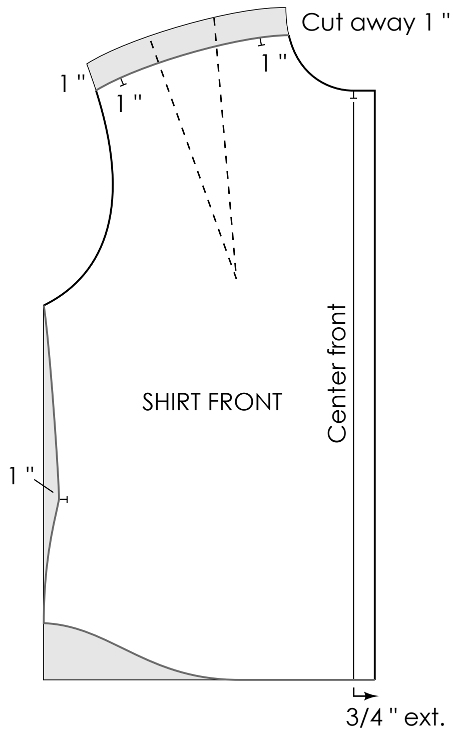

YOKE
Fold
SHIRT B ACK
Center back
1 "

Figure 3

- Trace the shirt front. Draw and trim 1 inch at the shoulder.
- Extend 3/4 inch at center front.
- Draw the side seam and hemline curve.

Figure 3


Cut away 1 "
1 "
1 "
1 "
1 "
Center front
SHIRT FRONT
1 "
3/4 " ext.

Completing the Patterns

The patterns can remain seamless or you can add seams. Test fit and make adjustment, if needed.

Figures 4a, b

- Add seam allowance.
- Mark notches.
- Label shirt back and shirt front.
- Add grainlines.

Figure 4a

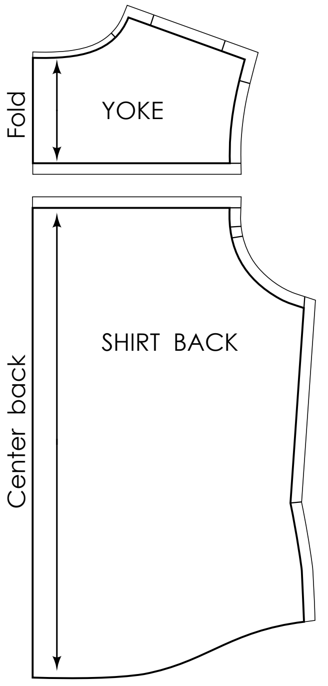
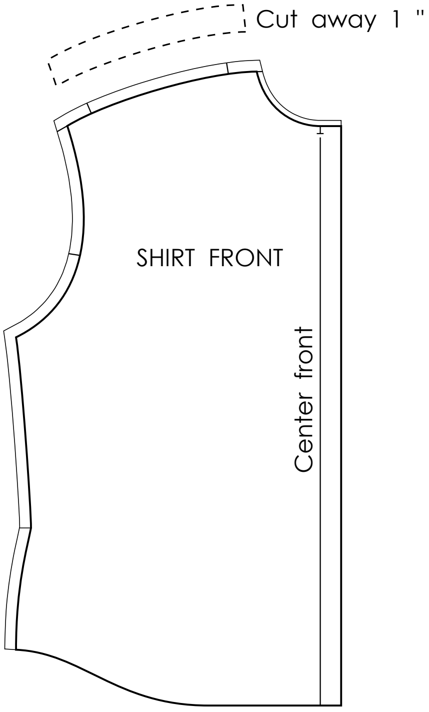

Fold
YOKE
SHIRT BACK
Center back

Figure 4b


Cut away 1 "
SHIRT FRONT
Center front

Sleeve Hemline Options

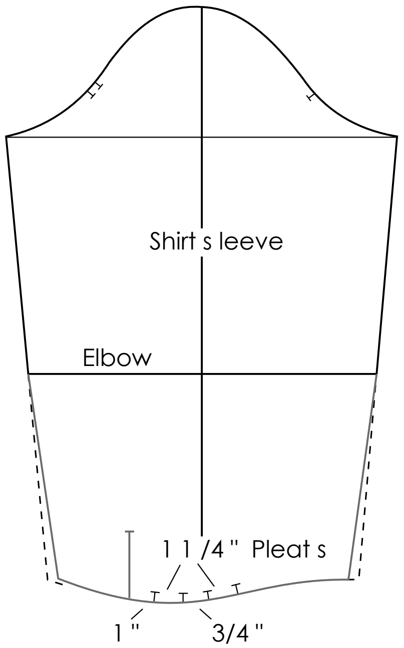
Subtract the around-hand measurement from the hemline of the sleeve. Choose the style preferred. Leftover excess is trimmed equally from the underseam.

Option 1: Two Pleats

Figure 1

- Mark two 1 1/4-inch darts 1 inch away from the right side of the slit. Dart space = 3/4 inch.
- Remove excess from the side seams (broken line), allowing 1/4 inch for ease. Blend a curved line to elbow.

Figure 1

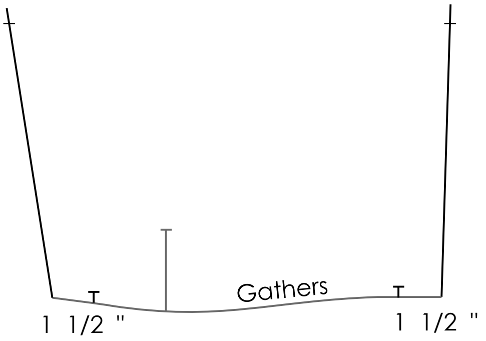


Option 3: Gathers

Figure 3

- For a gathered sleeve, notch hemline 1 1/2 inches in from underseams.

Figure 3

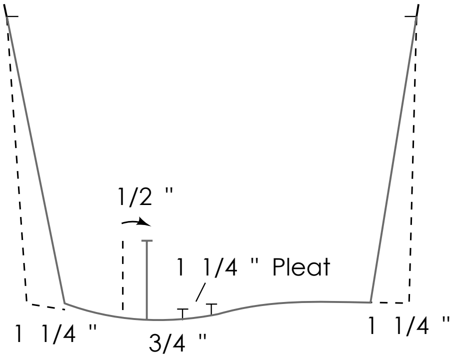


Option 2: One Pleat

Figure 2

- Shift slit 1/2 inch.
- Mark a 1 1/4-inch pleat 3/4 inch from the slit. Allow 1/4-inch ease on the left side of the slit.
- Remove excess from side seam, blending to elbow.

Figure 2

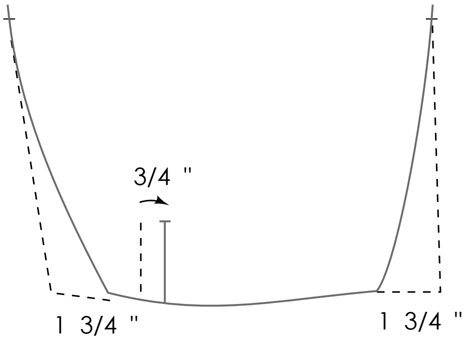


Option 4: Plain

Figure 4

- Allow 1/2 inch for ease. Remove excess from underseam at wrist, blending a slightly curved line to elbow. Move the slit 3/4 inch.

Figure 4



Closure Options

Banded Slit Opening

Figures 1a, b

- Cut band 1 1/2 to 2 inches wide and two times the length of the slit (Figure 1a).
- Use the illustration as a guide for stitching the band to the slit of the sleeve (Figure 1b).

Figure 1 a

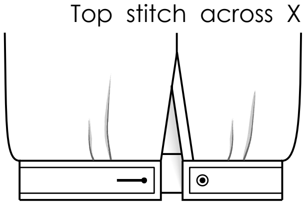
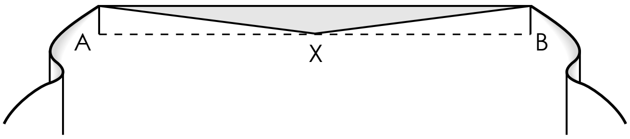


Figure 1 b

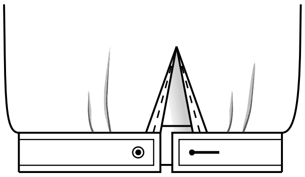


Stitch-Back Slit

Figure 2

- Fold the slit back (raw seam, overlock, or fold-over) and top-stitch to hold in place.

Figure 2

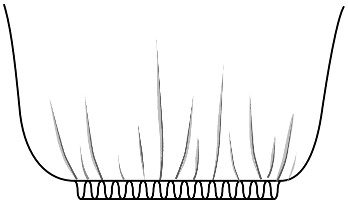


Elastic Control

Figure 3

- Add 2 inches to sleeve length for fold-over to hold elastic and blousing.
- Elastic should be 2 inches less than around-hand measurement. Width of elastic varies.

Figure 3

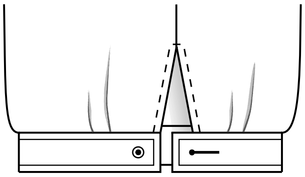


Underseam Opening

Figure 4

- With sleeve opening at the underseam of the sleeve, the seam is folded and top-stitched.

Figure 4

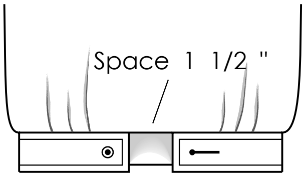


Spaced Opening

Figure 5

- Space cuff so that the material between will fold when the cuff is buttoned.

Figure 5



Shirt Sleeve Cuff

Figures 6a, b

- Square a line 2 inches up from the fold equal to the around-hand measurement, plus 1 inch for extension (Figure 6a).
- Complete as illustrated in Figure 6b.

Figure 6a

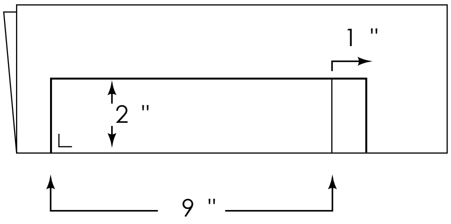
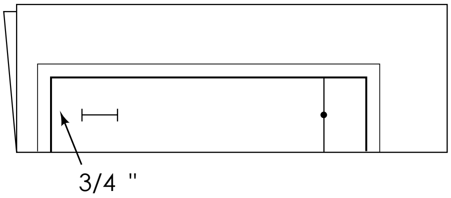


Figure 6b

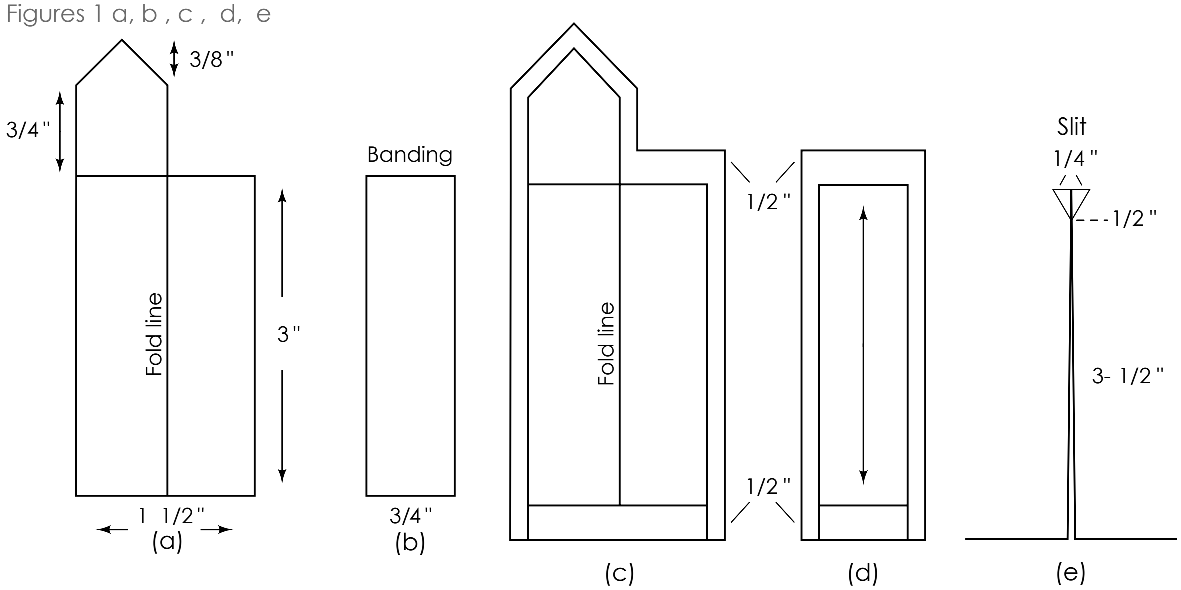


Placket

Figures 1a, b, c, d, e

- Draft placket using measurements given (a, b). Add 1/4 inch seams except where 1/2 inch is shown (c, d). Cut in fabric.
- Mark and cut slit 3 1/2 inches where the shirt pattern indicates. Draw 1/4-inch lines out from each side of the slit line. Mark angle lines, ending 1/2 inch down from the top of the slit (e).

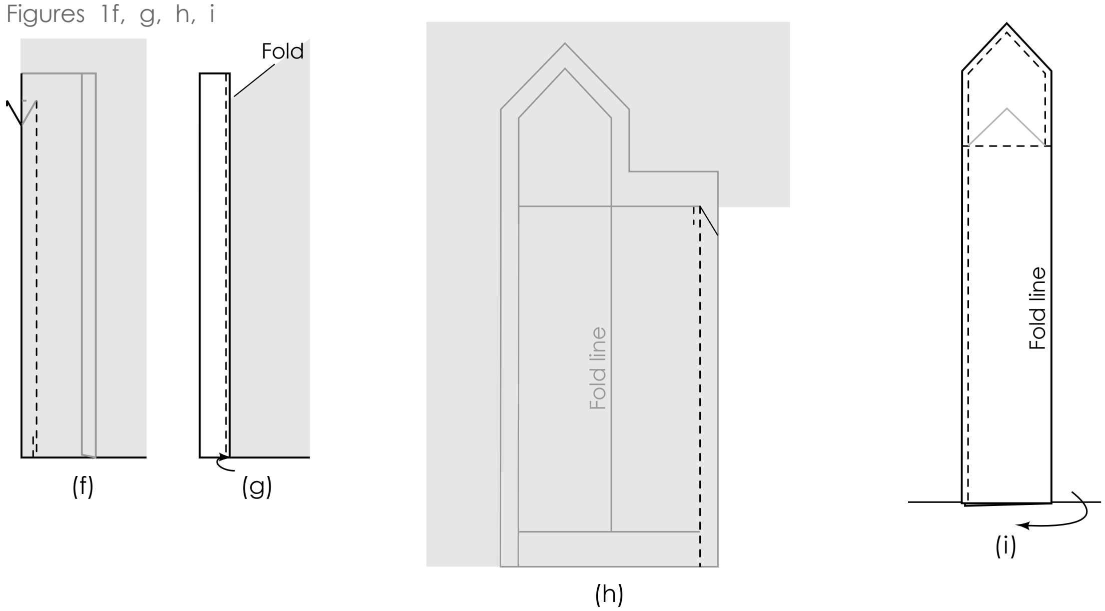
Figures 1 a, b , c , d, e


3/8"
3/4"
Fold line
3"
1 1/2"
(a)
Banding
3/4"
(b)
Fold line
(c)
1/2"
1/2"
(d)
Slit
1/4"
1/2"
3- 1/2"
(e)

Figures 1f, g, h, i

- The RS is faced to the WS of the sleeve slit. Stitch up to the angle cut and back-stitch (f).
- Fold banding, and edge-stitch. Move part of the shirt away to complete stitching (g).
- The placket's RS is placed to the WS of slit. Stitch to the end of the slit line and back-stitch (h).
- Fold the placket to RS and bring the angle line from underneath upward to be covered by the placket and fold 1/4" seams of the placket and edge-stitch (i). Refer to previous page for cuff choice and instruction.

Figures 1f, g, h, i


Fold
(f)
(g)
Fold line
(h)
Fold line
(i)

Shirt Facing and Band Variations

Five variations of facings are given, with two versions (Types 1 and 2) illustrated in Figure 1. Choose the one appropriate for the design. Types 4 and 5 include instruction for a band with facing. Facing widths can vary from those given.

Type 1: Shaped Fold-Back Facing

Figure 1

- Mark facing 2 1/2 inches wide at shoulder and 3 inches from extension line. Follow the neckline curve and continue parallel with center front (broken line).
- Fold the pattern on the extension line. With a tracing wheel, trace the facing outline.
- Notch center front top and bottom.
- Unfold and pencil in neckline and shoulderline.

Type 2: Straight Fold-Back Facing

- Fold pattern on extension line. With tracing wheel, trace neckline and notch center front, top, and bottom. Unfold and pencil in.
- The width of the facing is parallel to the extension line so that the fold-back ends at the corner of the shoulder neck (uneven broken lines). (This type of facing is often placed on the selvage as the finished line.)

Type 3: Attached Facing

Figure 2

- Trace the shoulder, neckline, extension, and hem of shirt pattern. Use measurements given to complete facing.

Figure 1

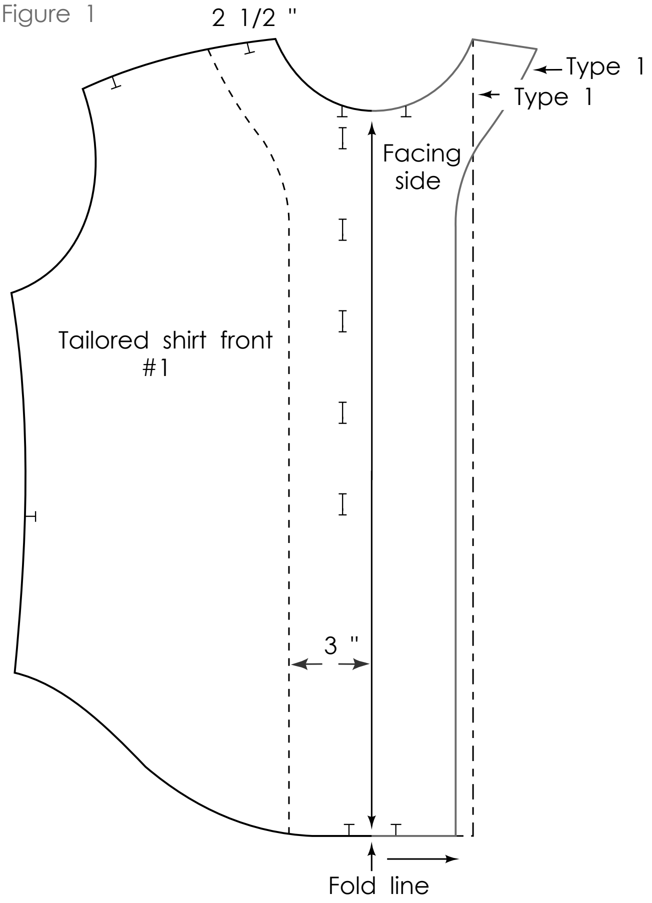
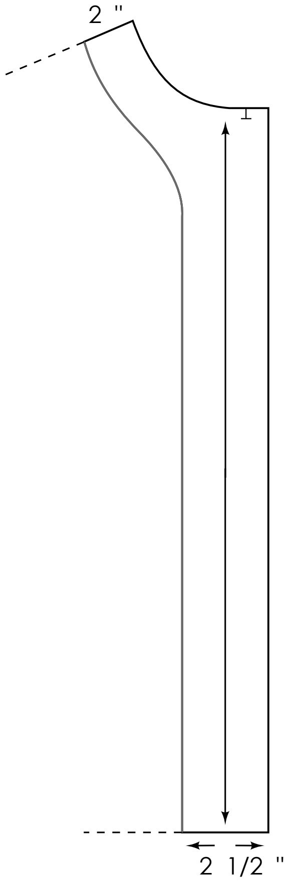


Figure 2



Type 4: Self-Faced Band

Figure 3 Trace Band

- The band is the same width on each side of center front notch (example: extension is 3/4 inch wide, band is 1 1/2 inches).
- Trace 1 1/2 inches of neck and hem. (Broken line is untraced pattern.)
- Mark notches at center front, top, and bottom.
- Remove the pattern.
- Draw a line from top and bottom to complete band.

Figure 4 Completed Band

- Draw grainline and mark vertical buttonholes.
- Add 1/4-inch seams with 1/2 inch on the side to be folded under.

Figure 5 Stitching Guide

- Place the band to the underside of the garment with wrong sides facing. Stitch band, ending at the center front notch at neck. Turn band to right side of the shirt. Fold-back 1/2-inch seam allowance and top-stitch 1/4 inch in from fold line and at extension side of the garment.
- The uppercollar is stitched to neckline notch. The undercollar is folded over the raw seam and stitched in the ditch (not illustrated).

Type 5: Set-in Band with Attached Facing

Figure 6 Facing

- Trace the pattern section for facing using instructions given in Figure 2, or reduce facing width (broken lines) to equal width of set-in band.

Figure 6

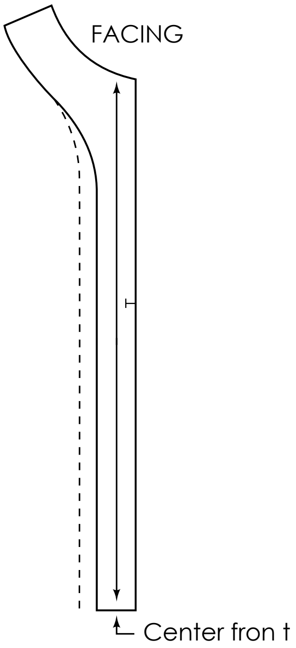


Figure 3
TRACE BAND

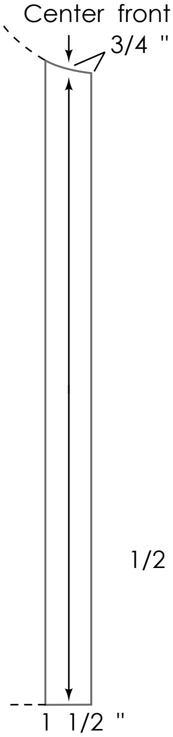


Figure 4
COMPLETE BAND

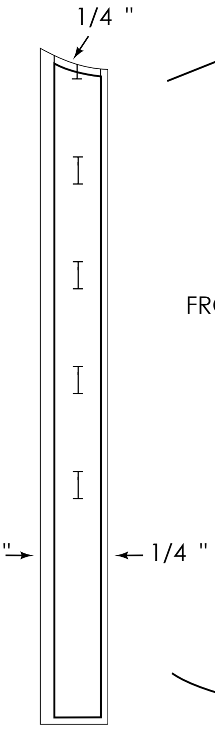


Figure 5

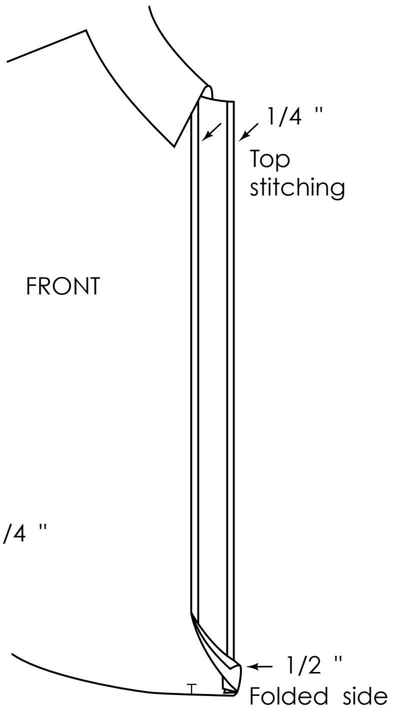
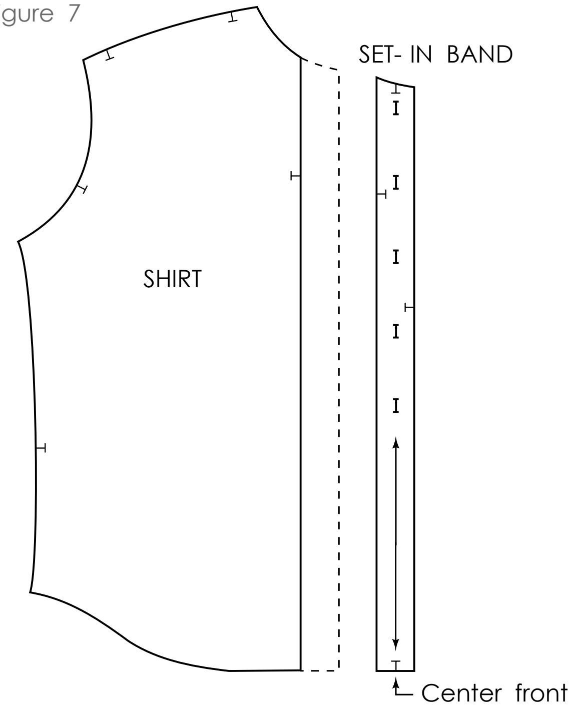


Figure 7 Band and Garment

- Measure in from the center front notch equal to width of the extension.
- Draw a line parallel to the extension line.
- Separate the pattern along this line.
- Trace patterns and add seams.

Figure 7



Hidden Button/Buttonhole Closure

Figure 1

Use marking paper to develop the following pattern.

- Trace the front shirt.
- Add 3/4 inch for extension. Draw line A.
  A to B = 1 1/2 inch. Mark.
  B to C = 1 1/4 inch. Mark.
  C to D = 1 1/4 inch. Mark.
- Draw lines parallel to the extension line from each mark.
- Add a 1/2-inch seam allowance to line D.
- Pleat-fold on each line and trace the neckline.
- Cut the pattern from the paper.

Figure 1

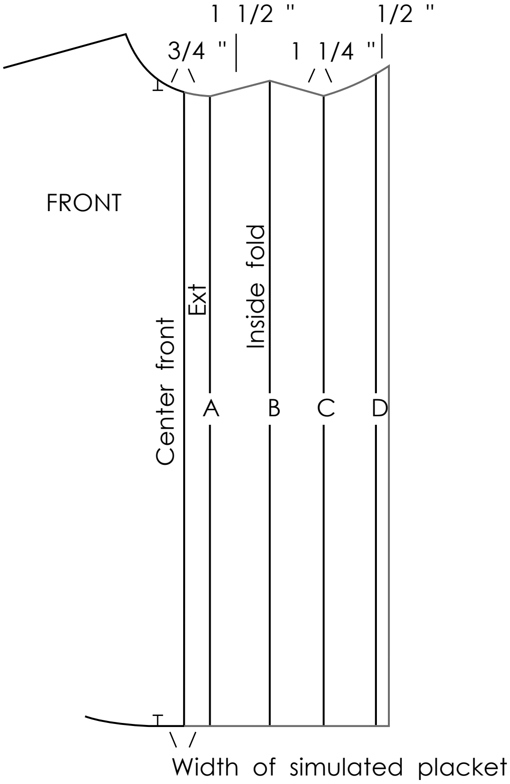

1 1/2 "
1/2 "
3/4 "
1 1/4 "
FRONT
Center front
Ext
Inside fold
A
B
C
D
Width of simulated placket

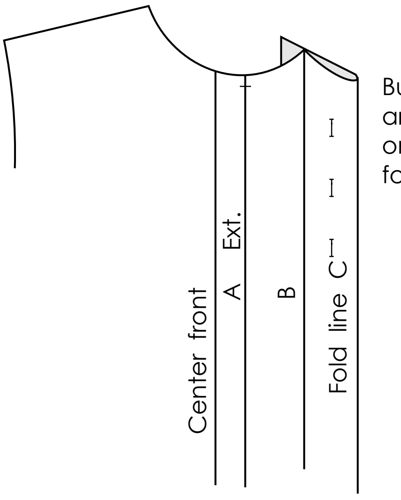
Figure 2 How to Stitch

- Fold on line C with the seam allowance, overlaying line B. At this time, the buttonholes may be placed on the extension.

Figure 3

- Fold on line A, placing fold C with A on the back side of the garment. Stitch down on the B line to hem.

Figure 2


Center front
A
Ext.
B
Fold line C

Buttonholes are placed on the B to C fold

Figure 3

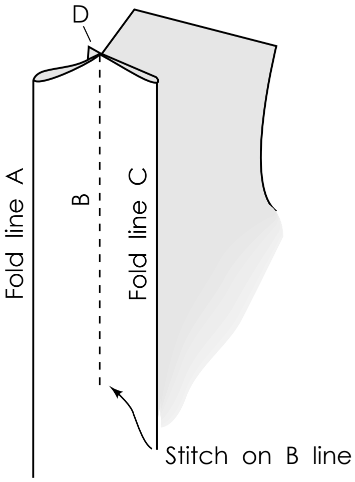

D
Fold line A
B
Fold line C
Stitch on B line

Figure 4

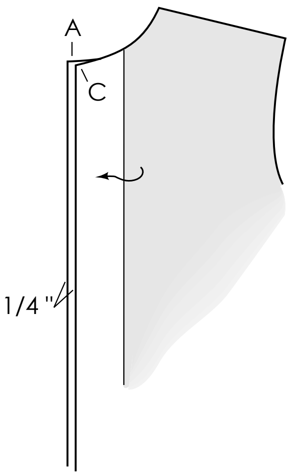


Figure 5

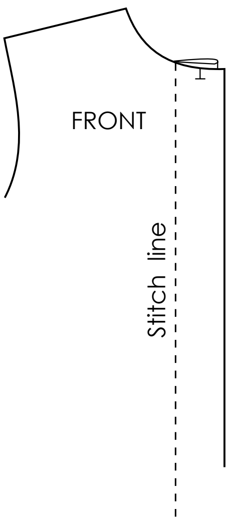

FRONT
Stitch line

Figure 4

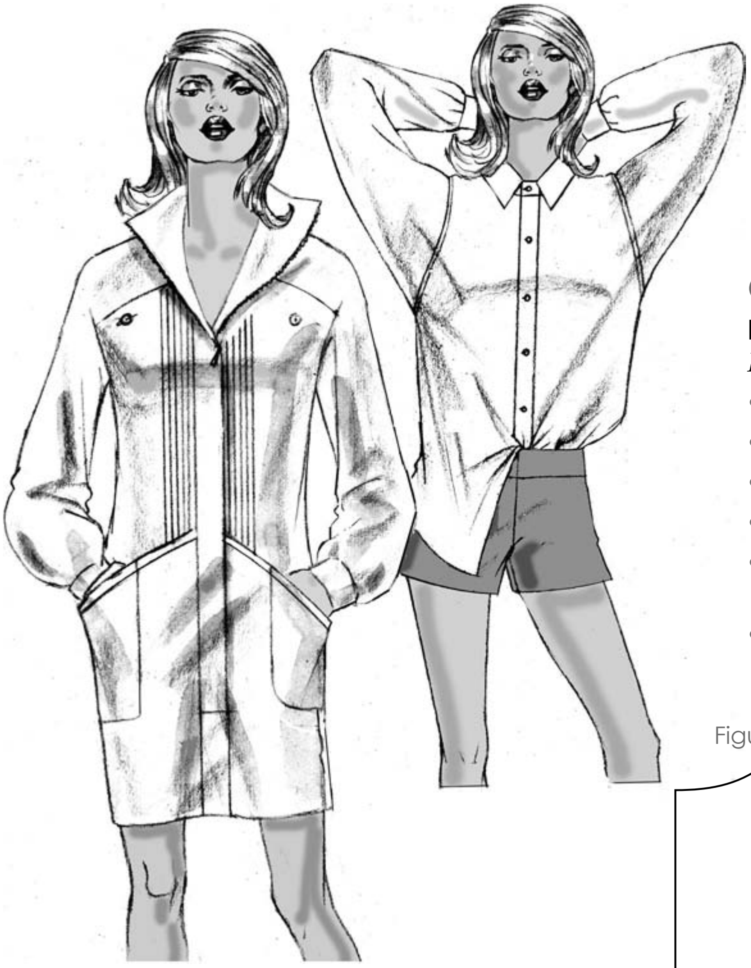
- After stitching, fold C section over.

Figure 5 Front View

- The C fold is 1/4 inch in from the extension line.
- The collar with stand is best for this type of closure.

CASUAL SHIRT AND SLEEVE FOUNDATION

The casual shirt foundation fits loosely. The armhole is made larger by the excess transferred to it from the shoulder and side darts. The armhole is lower and wider than the basic shirt. The casual shirt foundation can be developed from the front waist and side dart bodice and basic back, as illustrated. This casual shirt foundation is also the base for blouses, and with length added, it is a base for casual dresses.



Casual Shirt Draft

Figure 1

Back Shirt

- Trace the basic back bodice.
- Draw the shoulderline straight across dart (X).
- Add 1/4 inch to the mid-armhole (Y).
- Mark 1 1/2 inches down from the armhole.
- Square from center back, passing 1 inch from side mark (Z).
- Square a line from center back that touches the side waist.

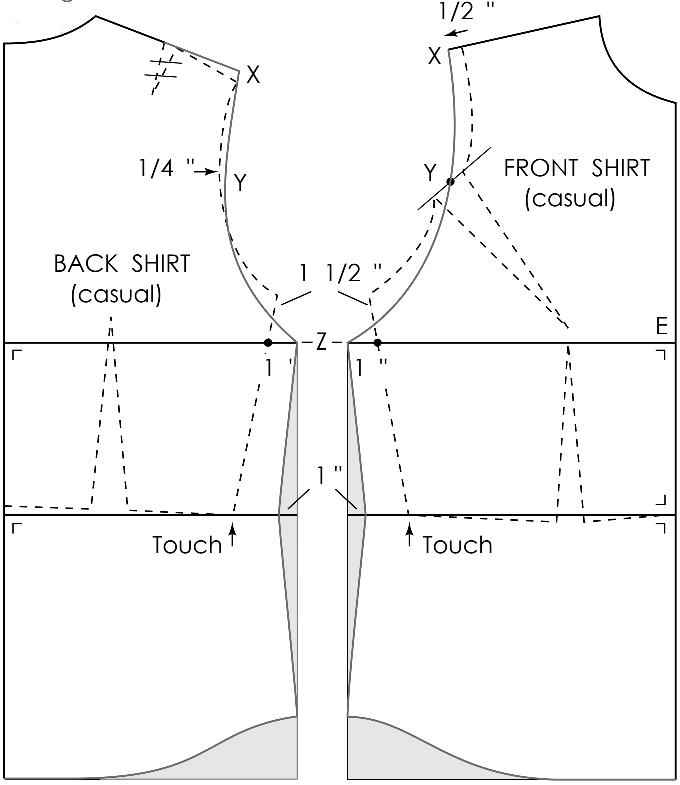
Front Shirt

- Trace front bodice, transferring the side dart to the armhole. Mark center of the space (Y).
- Extend the shoulder to equal back shoulder (X).
- Mark 1 1/2 inches down from the armhole.
- Square from the center back, passing 1 inch at side mark (Z).

Back and Front

- Continue center lengths 7 to 9 inches.
- Square across from this line and square up to touch (Z).
- Mark 1 inch in at waist level.
- Draw the side seam and hemline curve. Draw the armholes, touching X, Y, Z, as illustrated.

Figure 1



Figures 2a, b Adjusting Necklines and Armholes

- Trim 1/16 inch from around the neckline.
- Measure front and back armholes. If they differ, equalize the difference at the shoulderline.
- Record the front armhole measurement ________________.
- Mark armhole notches. Shoulder pads, if desired, do not require a change in the height of the shoulder.

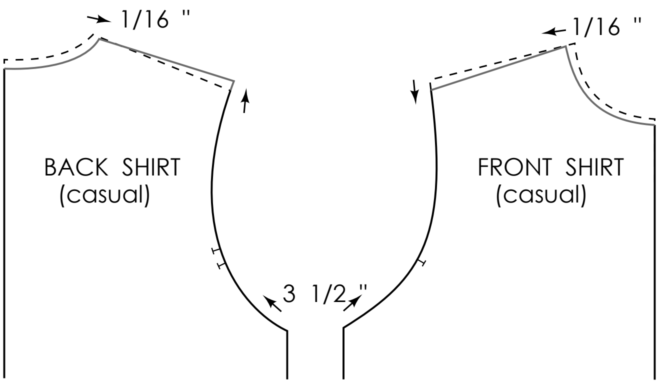


Figure 2a
Figure 2b
1/16 "
1/16 "
BACK SHIRT (casual)
FRONT SHIRT (casual)
3 1/2 "

Figure 3

- Trace the shirt sleeve. Label A and B.
- Fold on the center line.
- Mark 1 1/2 inches up from biceps line (D) and square a line across the paper. Draw a line from A, touching the new biceps line that equals the front armhole measurement. Label E.
- Draw a line to the hem of the sleeve.

Figure 4

- Divide A–E line into fourths.
- Square up 1/4 inch and square down 1/8 inch as shown. Draw a smooth and blended cap.
- Sleeve cap should measure 1/2 inch more than the front and back armholes. If not, add or subtract at E.
- Mark sleeve notches. See Figures 2a and 2b.

Figure 3

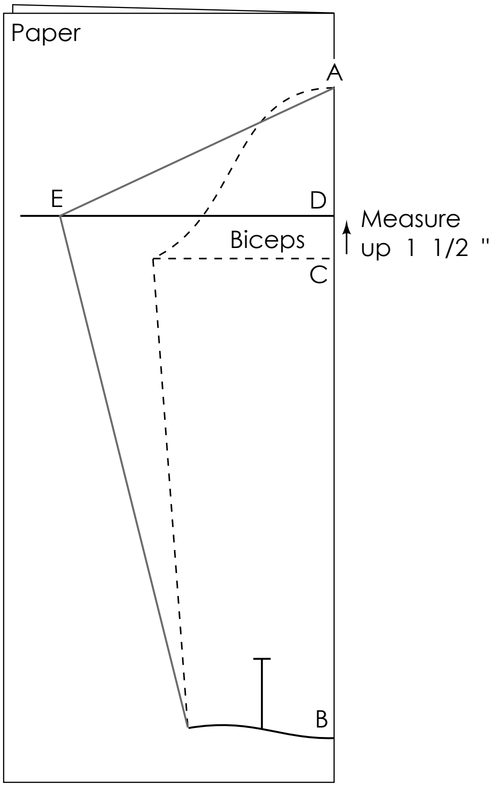
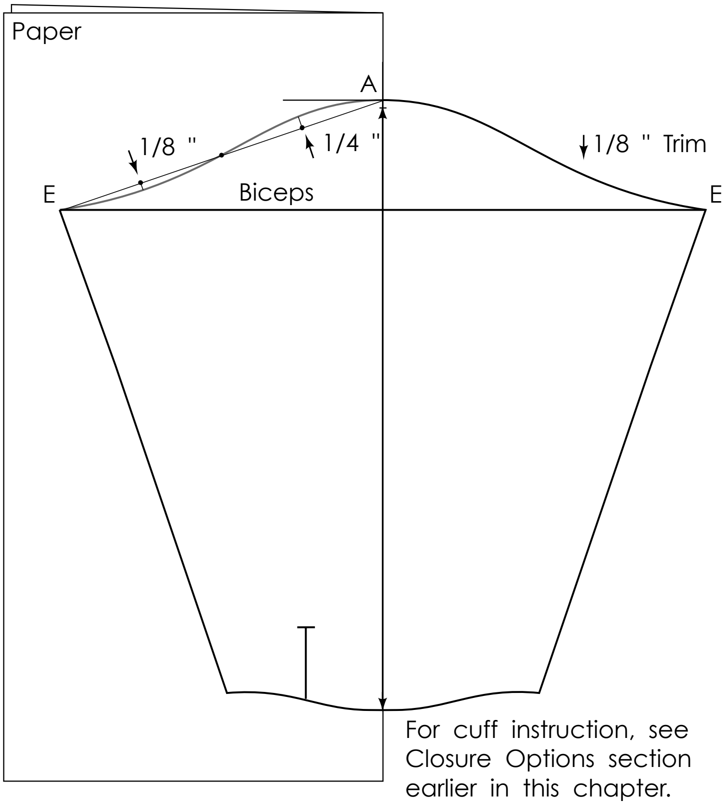

Paper
A
E
D
Biceps
C
Measure up 1 1/2 "
B

Figure 4


Paper
A
1/8 "
1/4 "
1/8 " Trim
E
Biceps
E

For cuff instruction, see Closure Options section earlier in this chapter.

Oversizing the Shirt

The sample is based on the casual shirt, but any shirt style can be oversized by using the following method. The body of the shirt can be tapered for style or fit.

Figure 5

- Trace the front and back patterns.
- Cut the patterns apart, from mid-shoulder to hem.
- Spread desired amount (A to B). Retrace.
- Lower the armholes, if desired.
- Measure the front and back armhole, add together, and divide in half. Record.
- Mark notches. See Figures 2a and 2b.
- Taper if less fullness at hem is desired.

Figure 5

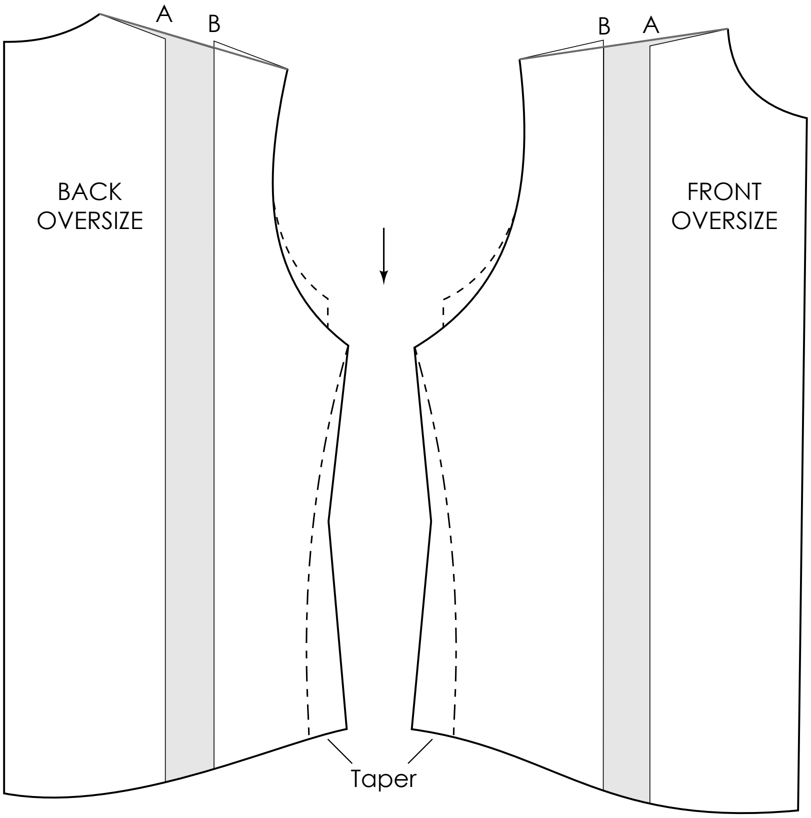
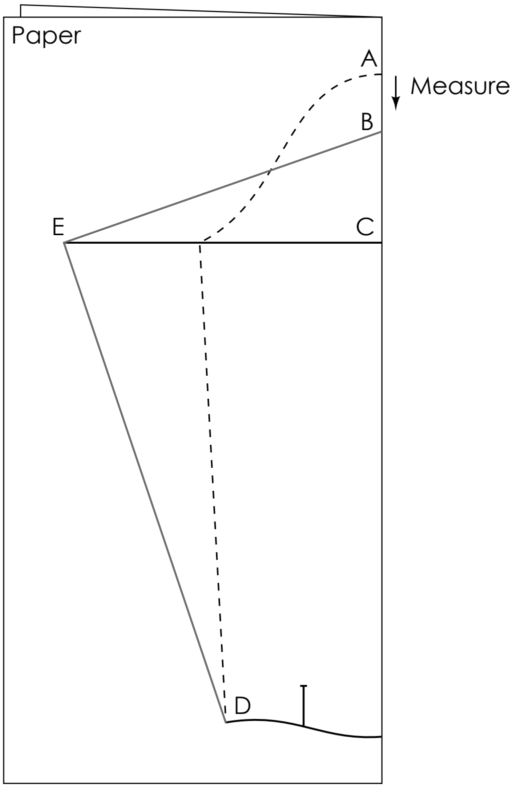


Figure 6

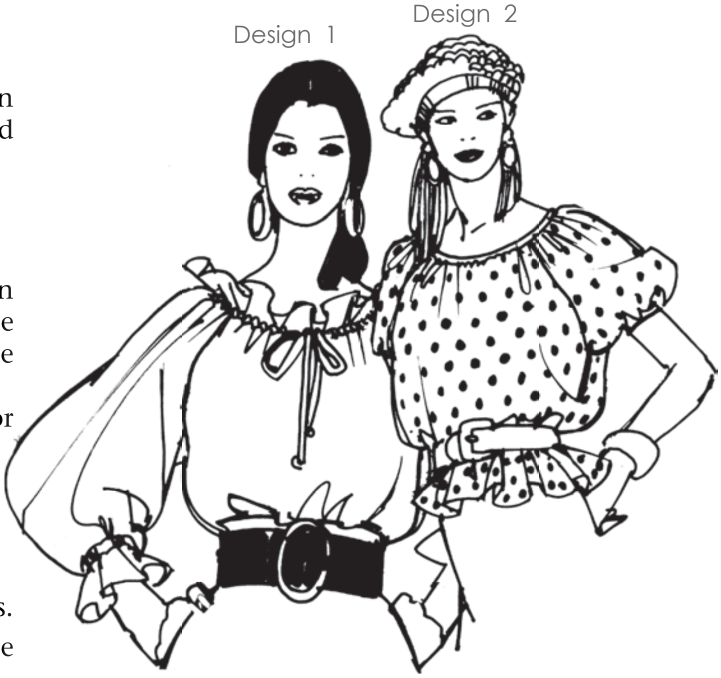


Sleeve Modification

Figure 6

- Place grainline of the shirt sleeve on fold of the paper and trace. Add sleeve length, if desired.
- Lower the sleeve cap equal to the oversized A–B measurement.
- Draw a line from B to E equal to recorded armhole measurement.
- Follow previous page Figure 4, to complete the sleeve.
- For cuff instruction, see Closure Options section earlier in this chapter.

PEASANT BLOUSE



The peasant blouse is a traditional fashion item in Western countries, but its ethnic roots can be traced to almost every country of the world.

Design Analysis

The gathered cut-out neckline and sleeve hem can be banded or have a casing with a pull-through tie or elastic. The blouse can be pulled down over the shoulders, if elastic is used. Design 2 is illustrated.

The peasant blouse is based on the basic shirt or blouse foundation.

Pattern Plot and Manipulation

Figures 1, 2

- Trace the front and back shirt/blouse foundations.
- Draw curve raglan stylelines just below the notches of the armhole. Label X.
- Draw slash lines from the bust point to the neck and to the side waist (front) and to side dart point.
- Draw a slash line from the side waist to the neckline (back).
- Draw the scooped neckline.
- Mark preferred blouse length.

Figure 1

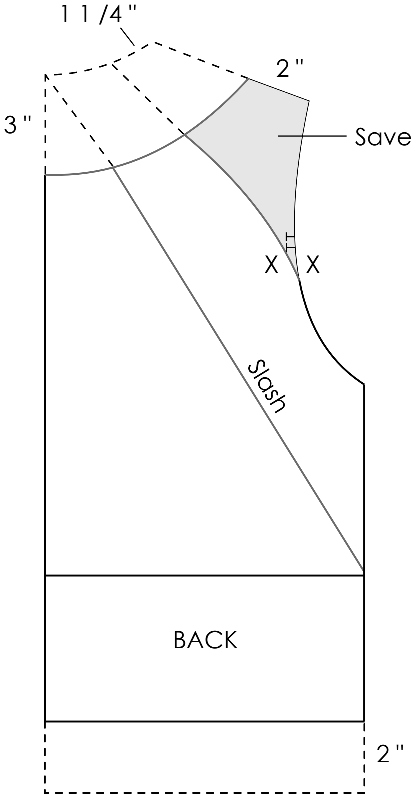
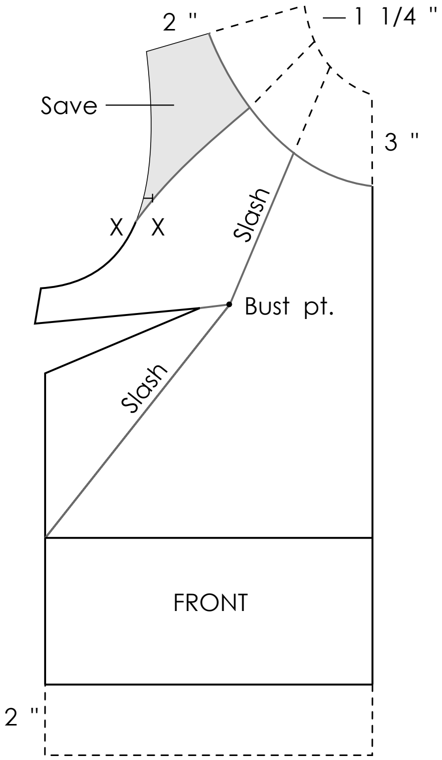


Figure 2



Figures 3, 4

- Cut necklines and separate the raglan lines.
- Save raglan sections for sleeve.

Front

- Slash from neck to side waist and from dart point. Close dart and spread to amount shown.

Back

- Slash to the side waist and spread 1 inch less than the front neck.

Figure 3

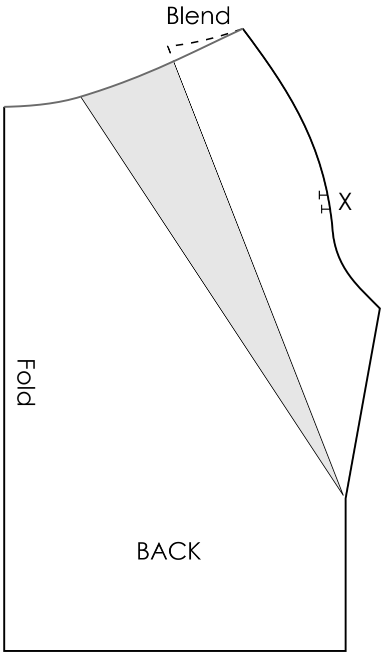


Figure 5 Sleeve

- Trace 3 inches below biceps or to desired length.
- Cut and separate on the grainline.
- Place the shoulderlines of the raglan sections together and trace.
- Match notches X of the front and back sleeve to the armhole and end 1/4 inch from the shoulder tip (broken lines). Trace. Mark A.
- Draw slash lines B and C, as shown.
- Cut from paper.

Figure 6

- Cut slash lines. Spread each to equal half of B to C. Trace.
- Draw hemline and seams.
- Cut from the paper.

Figure 4

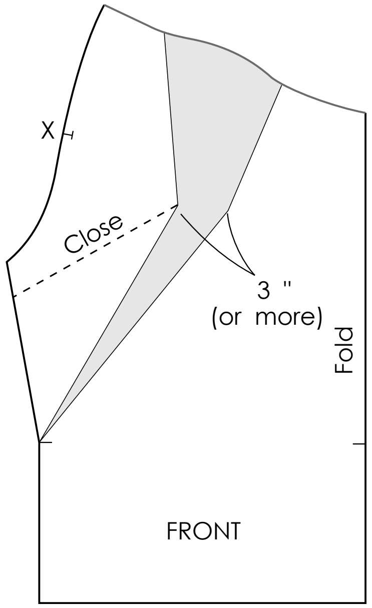


Figure 5

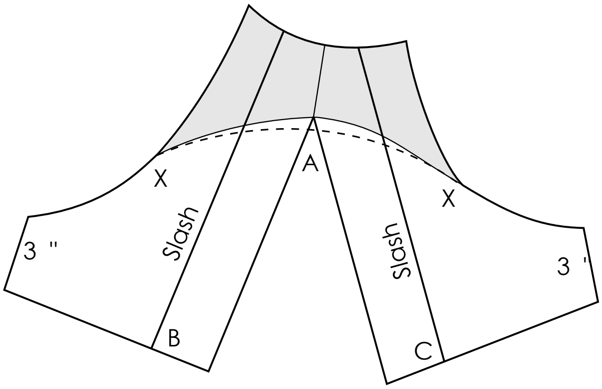
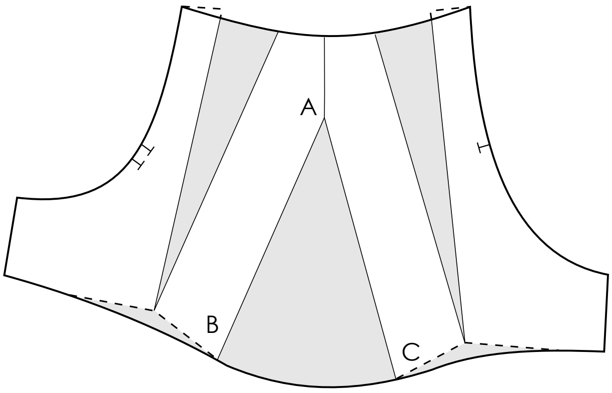


Figure 6



PEASANT SLEEVE

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

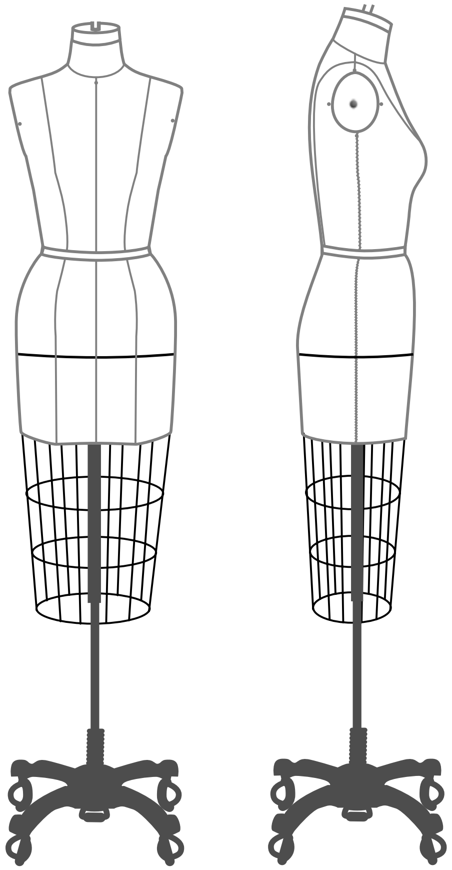
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____
2. Waist: _____
3. Abdomen: _____
4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
   B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
   Front = 1" (2 darts 1/2 to 5/8")
   Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

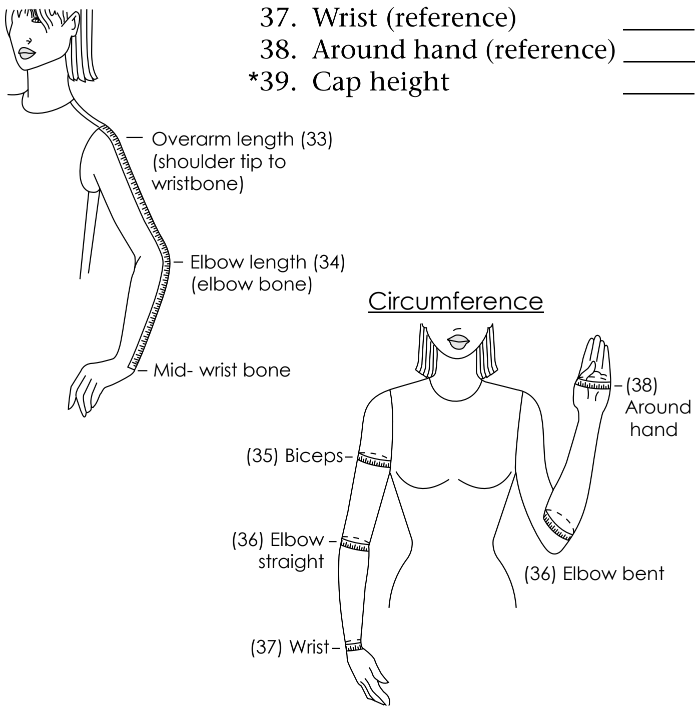
22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____


Length
Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone
Circumference
(38) Around hand
(35) Biceps
(36) Elbow straight
(36) Elbow bent
(37) Wrist

*Measuring the Arm

Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

This page intentionally left blank

Women's Jackets and Coats

From Chapter 22 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

Women's Jackets and Coats

JACKET AND COAT FOUNDATIONS
  Two Jacket Foundations
  Jacket and Coat Terms
  Inner Support—Terms and Definitions
  Basic Jacket and Coat Foundations
THE JACKET AND COAT SLEEVES
  Cap Ease
  Grading the Jacket/Coat Sleeves
  Tailored Two-Piece Sleeve
COLLAR/LAPEL DESIGNS
  Basic Notch Collar/Lapel
  Low-Notch Lapel
  Potrait Collar and Lapel
DOUBLE-BREASTED JACKET
DESIGN VARIATIONS
SHAWL FOUNDATION
  Shawl Collar Variations
  Wide Shawl Collars
  Shawl Collar with Separated Undercollar and Facing
STYLE JACKET
ONE-PIECE JACKET/COAT FOUNDATIONS
  Collar and Lapel Styles for the Tailored Jacket
  Transferring Dart to Neckline
  Tailored Collar
  The Wrap-Around Style
THE THREE PANEL STYLE
EVALUATING THE FIT OF THE JACKET

JACKET AND COAT FOUNDATIONS

The jacket and coat foundations are developed larger than the size they represent. The enlarged garments allow room for a lining, facing, interfacing, underlining, chest piece, shoulder pads, and sleeve headers, and they are large enough to fit comfortably over other apparel. Inner construction is an important part of the garment’s support system because it stabilizes the fit and shape of the garment. The type and amount of support depend on a number of factors: jacket style (soft or traditional tailored jacket), weight and weave of the fabric, cost of construction, and selling price of the garment.

Two Jacket Foundations

Two jacket foundations are illustrated: the *basic jacket* and the one-piece foundation. Each has its own unique base for creating designs. Both jackets and coat foundation can be combined with the kimono, raglan, and drop shoulder styles for sleeve variations. The princess, armhole princess, panel, and empire are also popular stylelines for jacket and coat designs.

Jacket and Coat Terms

A jacket designed with a skirt is considered a suit. A jacket designed as a separate is generally within a coordinated group.

Roll line. Foldline of the collar and lapel.

Breakpoint. Roll line of the lapel starting at the front extension.

Depth. Distance below center front where the lapels cross each other.

Collar stand. Height where the collar folds over itself.

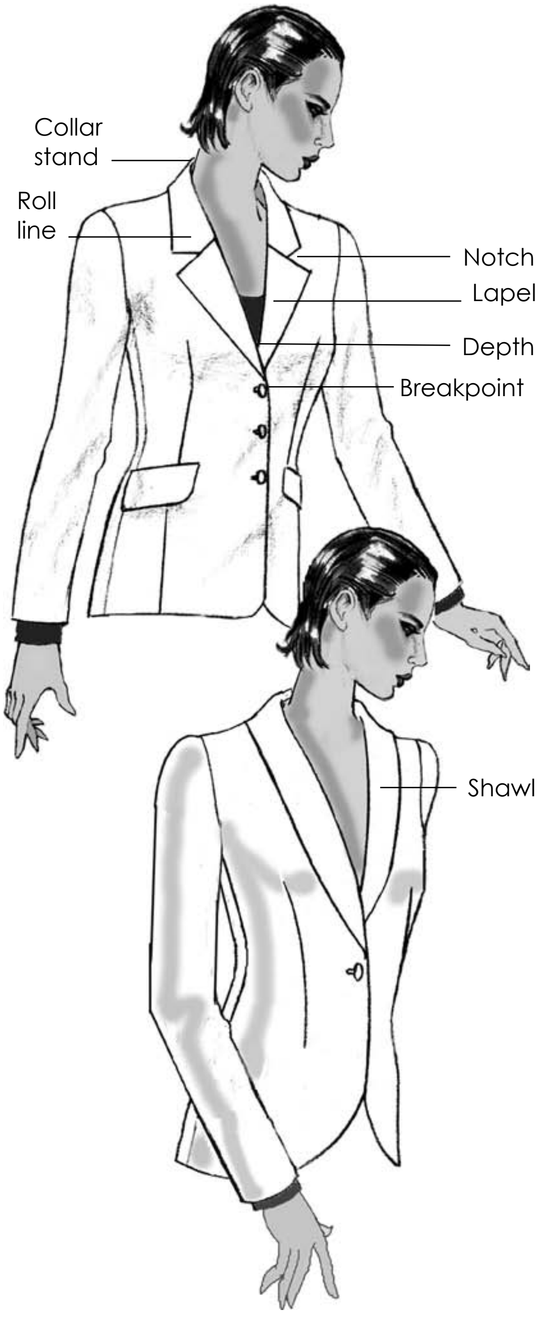
Lapel. Part of the jacket that folds over itself and to which a collar is attached.

Notch. Space between collar and lapel.

Gorge. Seam that connects the collar with the lapel.

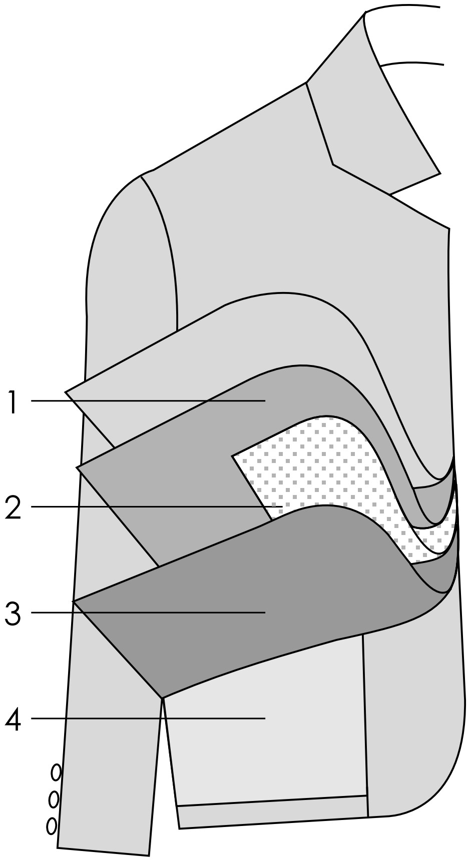
Revere(s). Lapel without a collar.

Shawl. Continuous lapel and collar in one.



Inner Support—Terms and Definitions

1. *Underlining*—reinforces open weaves, prevents transparency in light colors, and adds support. Select a light-weight woven fabric—broad cloth, muslin, or fusible interfacing. *Underlining is made from the jacket pattern.*
2. *Interfacing*—the layer between the garment and the facing. Its function is to stabilize collars, cuffs, vents, lapels, waistbands, and other shapes. Interfacing is classified as woven or nonwoven, fusible or nonfusible. It can be firm for structured garments and supple for soft tailoring. A seam allowance is required for woven nonfusible interfacing, but it is optional for fusible interfacing. *Interfacing is made from the jacket pattern.*
3. *Interlining*—the layer between lining and underlining (adds insulation). Stitched to lining individually and acts as a single layer. *Interlining is made from the lining pattern.*
4. *Lining*—a finishing layer that covers the inside construction of the garment. *Lining is made from the jacket pattern.*



Additional Inner Support Fabrics

For your fabric library, find the following inner support fabrics and ask for swatches. Attach swatches in the boxes below. Research the use of each fabric and record.

Hymo Use	Wigum Use
Horse Hair Use	Melton Use
French Elastic Use	Belgium Linen Use

Basic Jacket and Coat Foundations

The jacket and coat are based on the torso foundation. The jacket pattern allows room for 1/4-inch-thick shoulder pads. Designs requiring larger/thicker shoulder pads should adjust the shoulderline of the jacket but not the lining. Refer to the end of this chapter.

Enlarging the Patterns

Figure 1

Trace the front torso foundation and move the dart point. Transfer excess from the side dart (or shoulder dart) to the mid-neck and armhole areas from the adjusted bust point. Trace back pattern.

Figures 2 and 3

- Starting at the front and back neck, follow direction of the arrows and measurements (doubled for coat foundation).
- Dot mark each location. Connect lines.
- Correct the shoulder dart by adding to shorter leg and draw a line to the shoulder tip.
- Draw the front and back armholes.

Figure 1

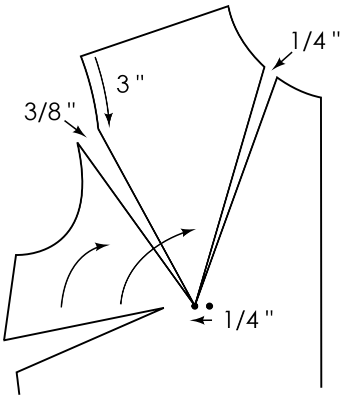


Figure 2

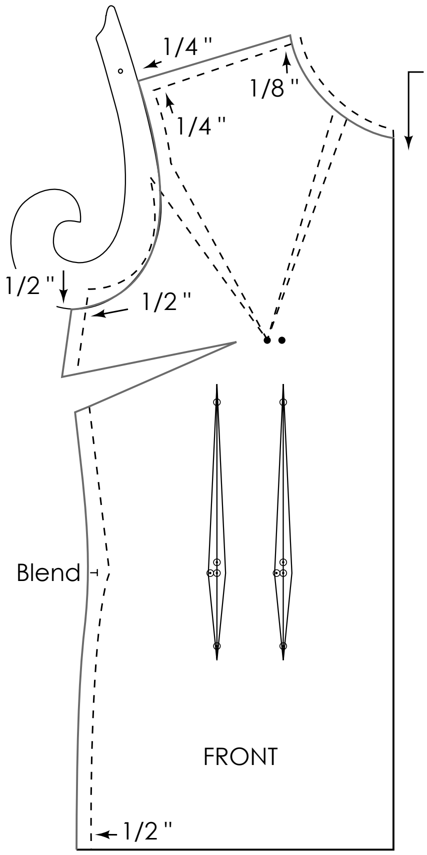
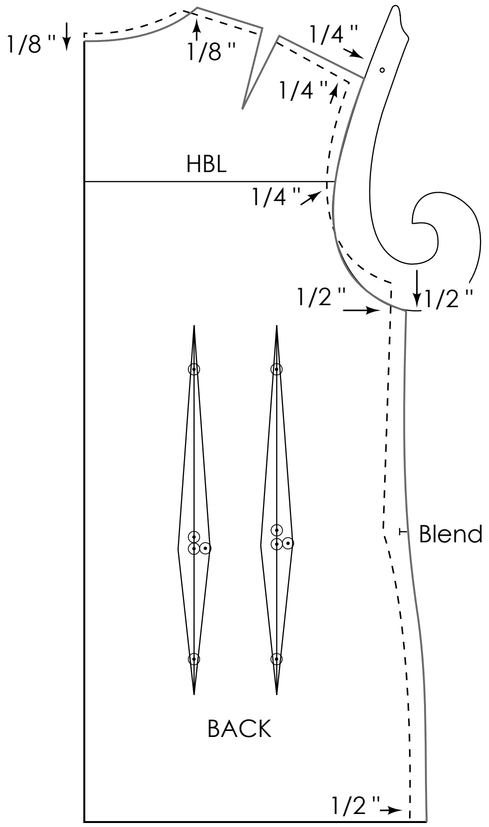


Figure 3



Measure the Armholes

Measure front armhole: _________

Measure back armhole: _________

Add together: _________

Measurement will determine sleeve cap ease. The sleeve draft follows.

THE JACKET AND COAT SLEEVES

The basic dress sleeve is the base for drafting the one-piece and two-piece sleeves for the basic jacket and coat foundations. Double the measurements when drafting the coat sleeve.

Two methods are illustrated for increasing the bicep and cap ease: *slash/spread* and the *grading method* next page.

Slash and Spread Method

Figures 1a, b Sleeve and Paper Preparation

- Trace a copy of the basic sleeve.
- Divide the biceps into four equal parts.
- Mark and label X, Y.
- Square guidelines up and down from each mark. If the X line falls outside the hem of the back sleeve, redirect the line from elbow to corner of the hem (Figure 1b).
- Square a line from center, touching the X line at the sleeve cap and continue the line across the sleeve. Label Z.

Paper Guidelines

- Draw a vertical line in the center of the paper.
- Square a horizontal (biceps) line 8 inches from top of the paper.

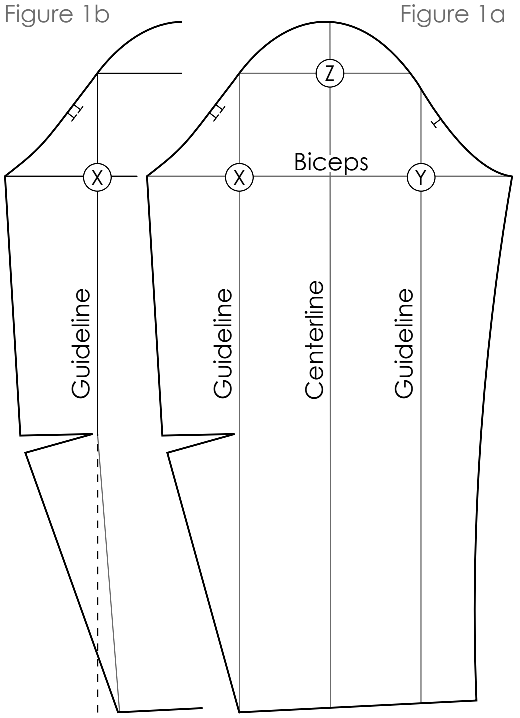


Figure 1b

Figure 1a

Figure 2 Spreading the Sleeve Parts

- Cut the sleeve apart through all guidelines.
- Place pattern parts on the paper, aligning center and biceps line.
- Spread each section, using measurements given. Pattern parts are parallel. Secure to the paper.
- Trace and blend at the sleeve, cap and hem. Cut from the paper and trace a clean copy.

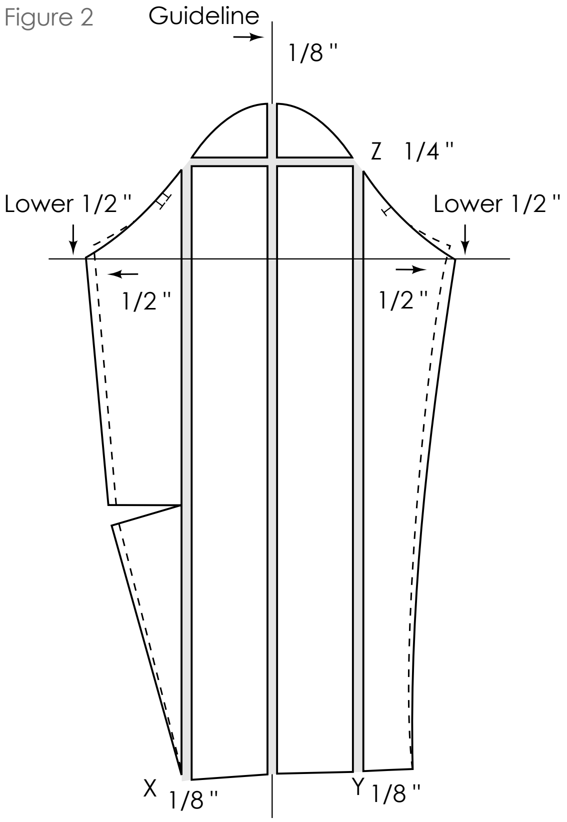


Figure 2

Cap Ease

Measure sleeve cap. Subtract the armhole measurement from the sleeve cap. If the difference is less than 1 1/4 inches or greater than 1 3/4 inches, adjust the cap.

Grading the Jacket/Coat Sleeves

Grade Terminology:

The terms are in relation to the location of the grader to the guidelines placed on the paper.

Out. Away from the grader (↑).

In. Toward the grader (↓).

Up. To the right of the grader (→).

Down. To the left of the grader (←).

The top of the pattern is to the right of the grader.

Subtract the armhole measurement from the sleeve cap. Cap ease can be 1 1/4 to 1 3/4 inches. To increase or decrease cap ease, adjust the grade steps 2, 3 (back sleeve), 7, and 8 (front sleeve).

Figure 1 Preparing the Sleeve Draft

- Draw a guideline 25 inches long.
- Square a line 8 inches down from the top edge of the paper.
- Place the biceps and grainline of the sleeve on the guideline.
- Draw the hemline, extending 1/4 inch out from each corner (numbers 5 and 10).

Figure 1

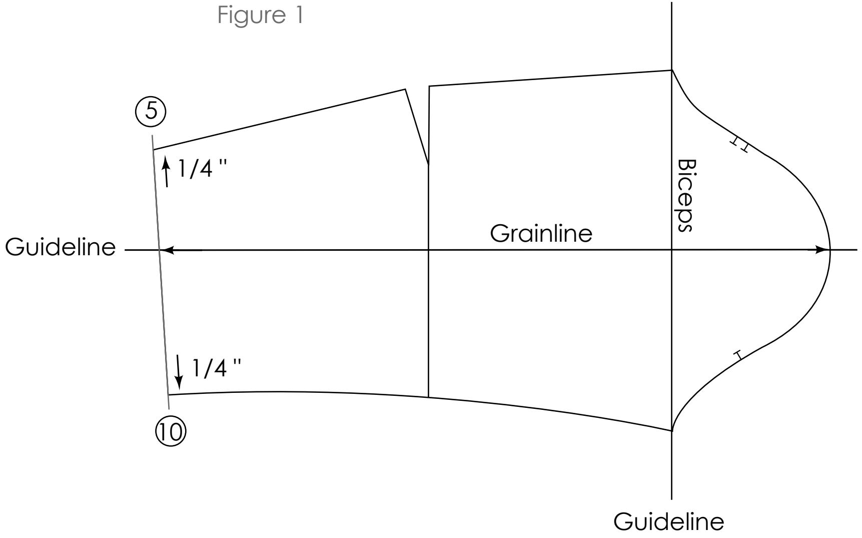


Figure 2 Back Sleeve Grade

Follow the numerical order and the amounts given as the sleeve pattern is moved in the direction indicated by the arrows. Sections of the cap are drawn with each move. *Double the measurement for the coat foundation.*

The grainline and biceps must be parallel with the guidelines as the pattern moves from grade to grade. The grade ends with number 4. Return the pattern to the guideline, aligning biceps and grainline.

Figure 2

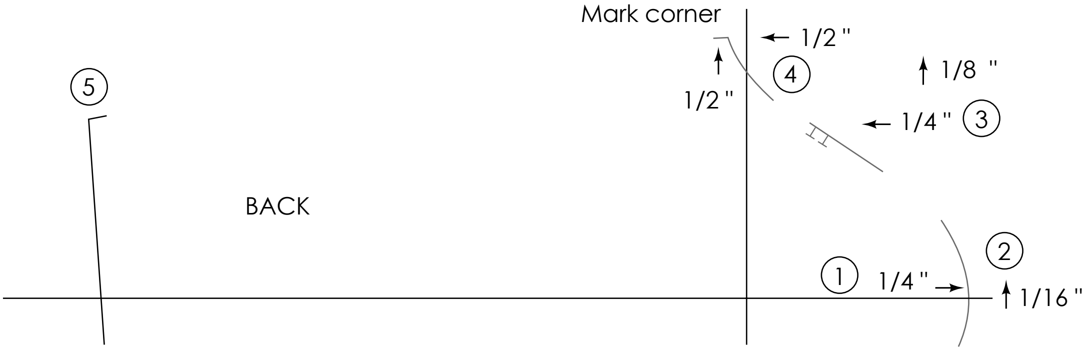


Figure 3
Front Sleeve Grade

- The grainline and biceps must be parallel with the guidelines as the pattern moves from grade to grade.
- Start grade with number 6 and end with number 9.

Figure 3

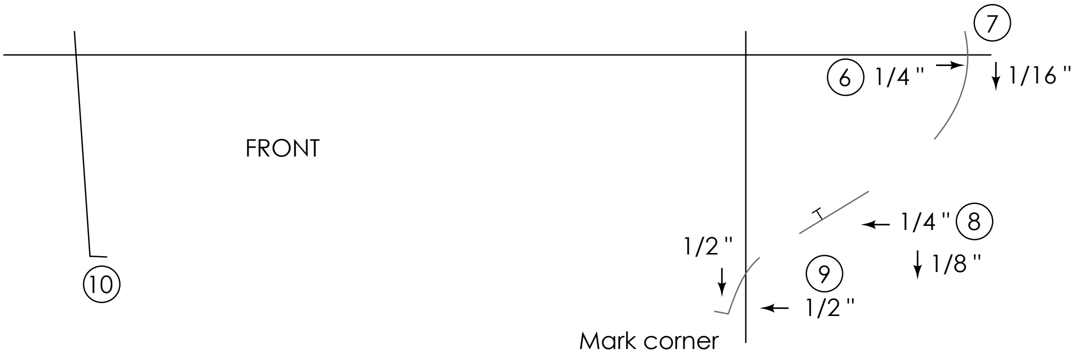

⑦
⑥ 1/4"
1/16"
FRONT
1/4" ⑧
1/8"
1/2"
⑨
⑩
1/2"
Mark corner

Figure 4
Back Underseam

- Place the back underseam between points 4 and 5 and draw the underseam.

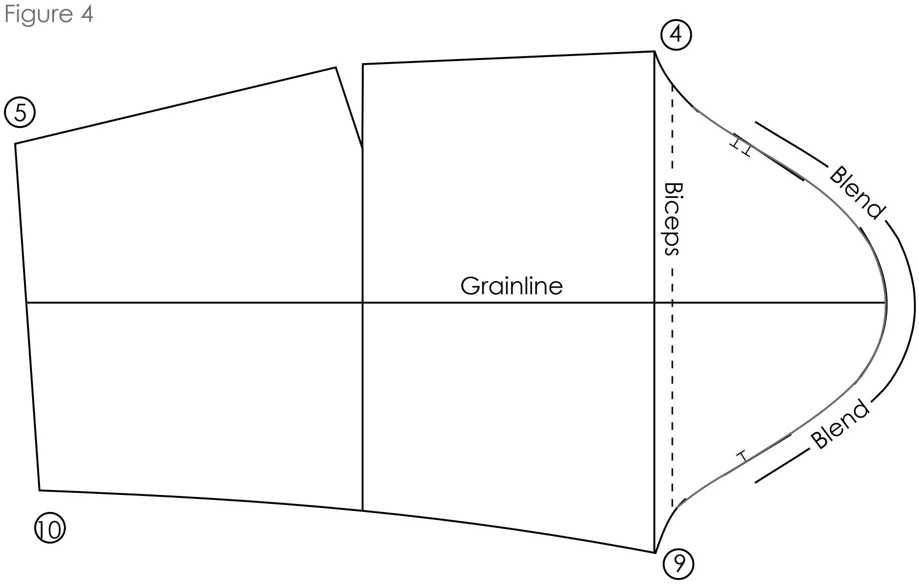
Front Underseam

- Place the front underseam between points 9 and 10 and draw the underseam.

Cap Line

- Use the grading sleeve to help shape and blend the cap line.
- This completes the sleeve grade.

Figure 4


④
⑤
Blend
Biceps
Grainline
Blend
⑩
⑨

Tailored Two-Piece Sleeve

The upper- and undersleeves are drafted together. They are separated at the completion of the draft by tracing the undersleeve on another sheet of paper. The uppersleeve is cut from the remaining part of the sleeve.

The two-piece sleeve is based on the basic jacket sleeve. The undersleeve measurements can be varied to accommodate the panel and wrap stylelines of a jacket or coat. See The Wrap-Around Style and The Three Panel style sections at the end of this chapter.*

Figure 1

- Trace and cut the jacket or coat one-piece basic sleeve.
- Fold the sleeve cap on the biceps line touching at center grainline.
- Draw the curve of the front and back undersleeve.
- Mark dots 1 1/4 inches from grainline. Square up to the curve of the sleeve (broken lines).
- Mark X on the fold line.
- Repeat instruction for back sleeve.

Figure 2

- Unfold and label dots Y and Z as shown.
- Divide the hemline into four equal parts.
- Mark X on the first and last mark.
- Divide elbow in half on each side of center grain. Mark and label X.
- Draw connecting lines through X.

Figure 1

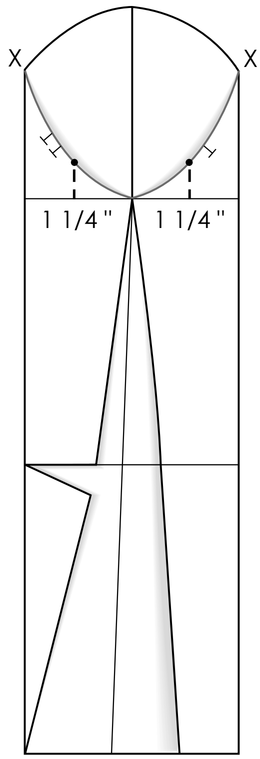
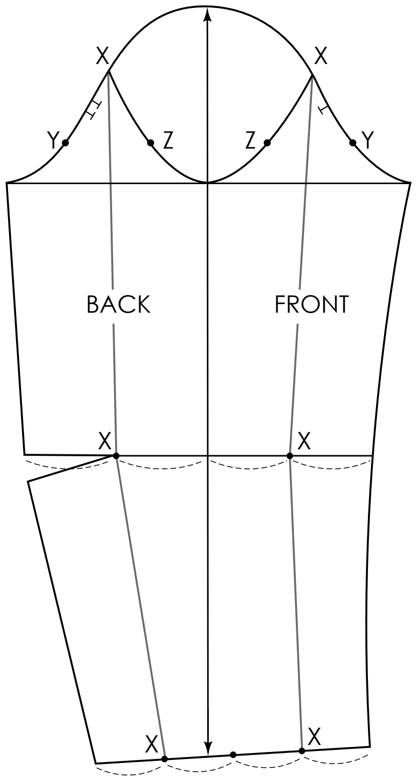


Figure 2



---

*When drafting the sleeve for the one-piece jacket/coat foundation and the shoulder dart excess has been transferred to the armhole, re-measure the armhole. If insufficient ease, widen the biceps, before drafting the two-piece sleeve.

Figure 3 Uppersleeve (Shaded Area)

Instruction applies to right and left sleeve.

X to Y = 1 inch. Mark at elbow level.

X to Y = 3/4 inch. Mark at hem level.

- Draw connecting lines through Y, ending at cap.
- Repeat for left side of sleeve.
- Mark elbow notches 1 1/2 inches up and down from each dart leg on Y line (left side).

Figure 3

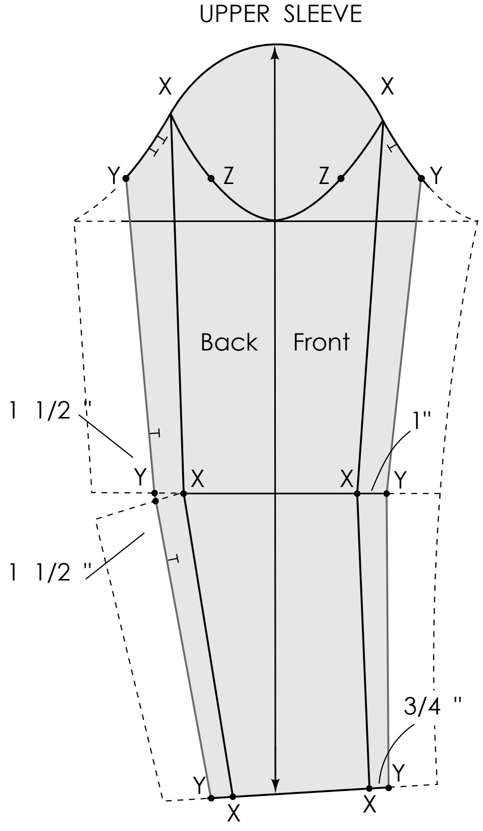

UPPER SLEEVE
X
X
Y
Z
Z
Y
Back
Front
1 1/2"
1"
Y
X
X
Y
1 1/2"
3/4"
Y
X
X
Y

Figure 4 Undersleeve (Shaded Area)

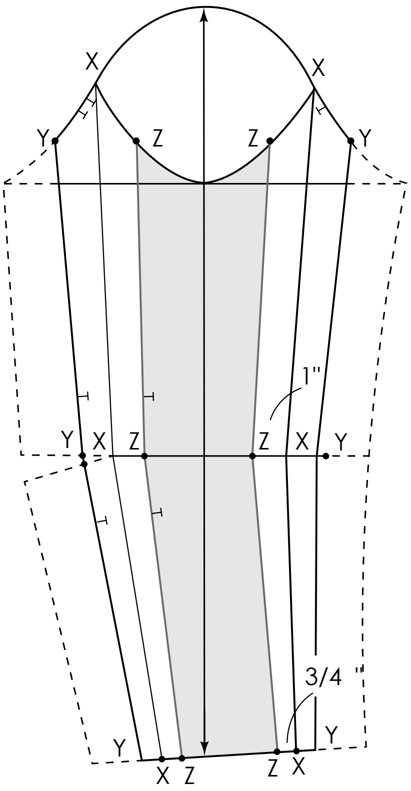
Instruction applies to the right and left sleeve.

X to Z = 1 inch. Mark at elbow level.

X to Z = 3/4 inch. Mark at hem level.

- Draw connecting lines through Z.
- Repeat for left side of sleeve.
- Mark elbow ease control notches 1 1/2 inches up and down from dart legs on Z line.
- Place paper under the draft and trace the undersleeve.

Figure 4


UNDER SLEEVE
X
X
Y
Z
Z
Y
1"
Y
X
Z
Z
X
Y
3/4"
Y
Y
X
Z
Z
X

Figures 5a, b Finalizing Sleeve Shape

- Remove paper and draw outward and inward lines to blend the panel shapes. Measure sleeve cap.
- True the panel at the hem by adding to the shorter length and blend; add seam. Cut uppersleeve from draft.

Figure 5a

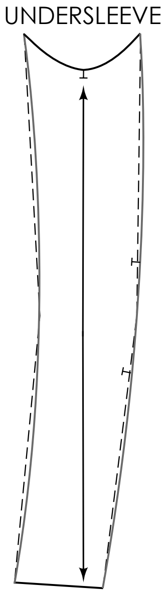
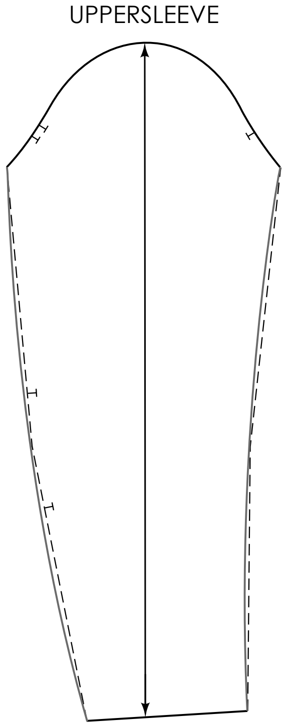

UNDERSLEEVE

Figure 5b


UPPERSLEEVE

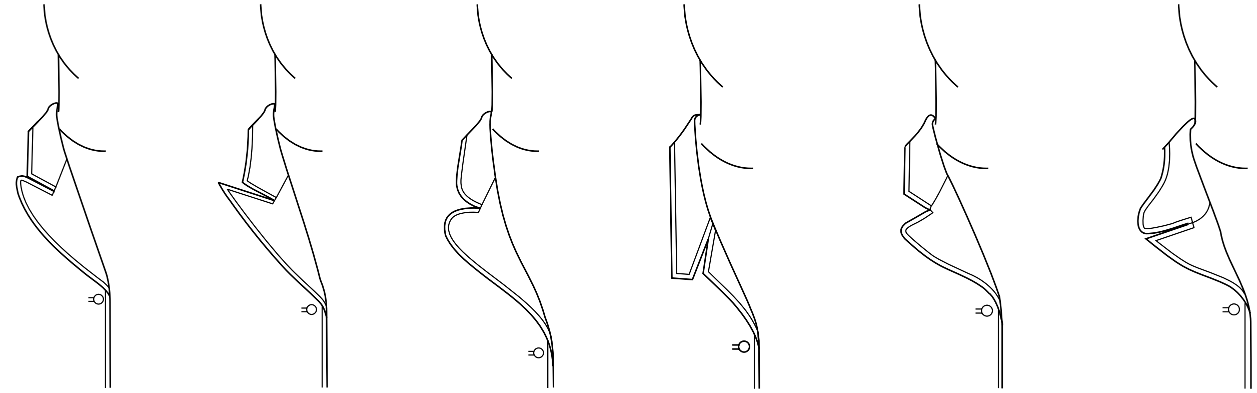
COLLAR/LAPEL DESIGNS

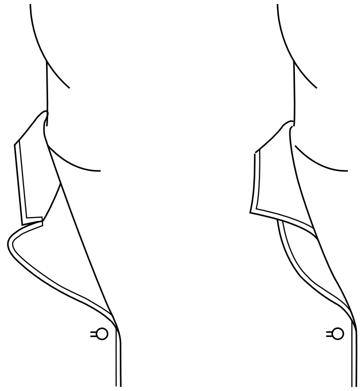
Three Standard Collar and Lapel Styles

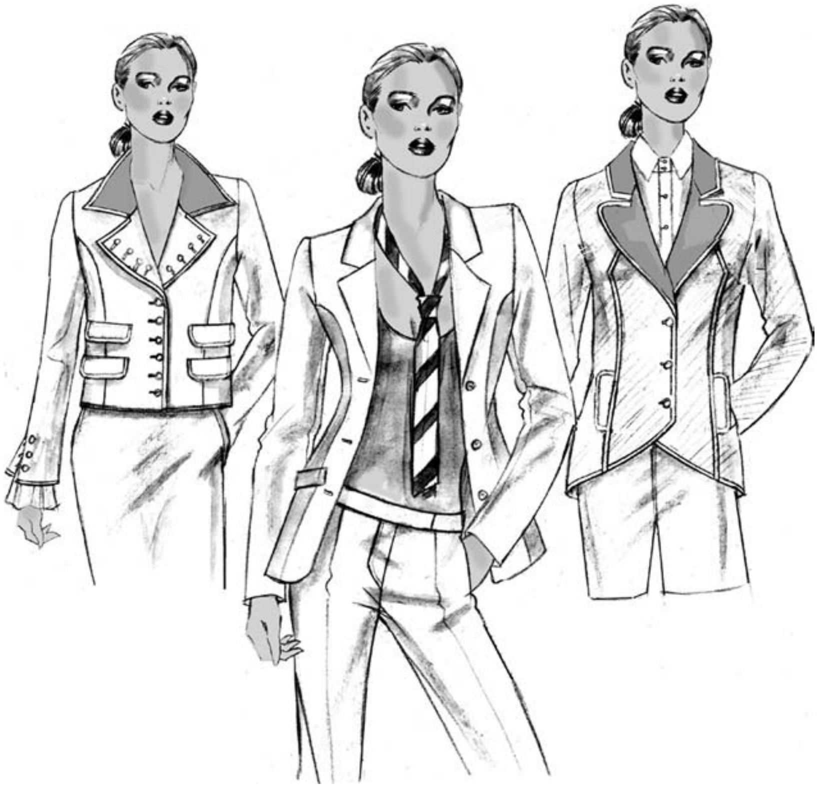
1. Basic notch—drafted at level with the neckline
2. Low-notch—drafted at varied depths below a modified neckline
3. Portrait—drafted a distance away from shoulder/neck on the shoulderline

The standard collar and lapel styles (basic, low notch, and portrait) can be varied to accommodate the design of the jacket or coat. Each collar and lapel should be drafted for practice before creating your own designs (see suggestions below).

A completed jacket draft is shown in the Style Jacket section later in this chapter. The sample is a guide for other designs that are based on the basic jacket and coat foundations.







Basic Notch Collar/Lapel

Design Analysis

The collar/lapel indicates that the "notch" (or wedge) is at level with the front neck of the model. After drafting the basic collar/lapel, create your own design using the formula.

Measurement Needed

C.B. neck to shoulder _______________.

Pattern Plot and Manipulation

Figure 1

- Trace the front and back jacket patterns (back not illustrated).
- Label the shoulder/neck A.
- Label center front depth B (example: 2 inches above bust level—point where lapels overlap).
- *Extension:* Draw a parallel line 1 inch from center front, ending at level with B. (The width of extension should equal diameter of the button.)
- A–C = 1 inch (collar stand). Draw a line from C through B, ending at extension (roll line). Label D (breakpoint of lapel).

Figure 1

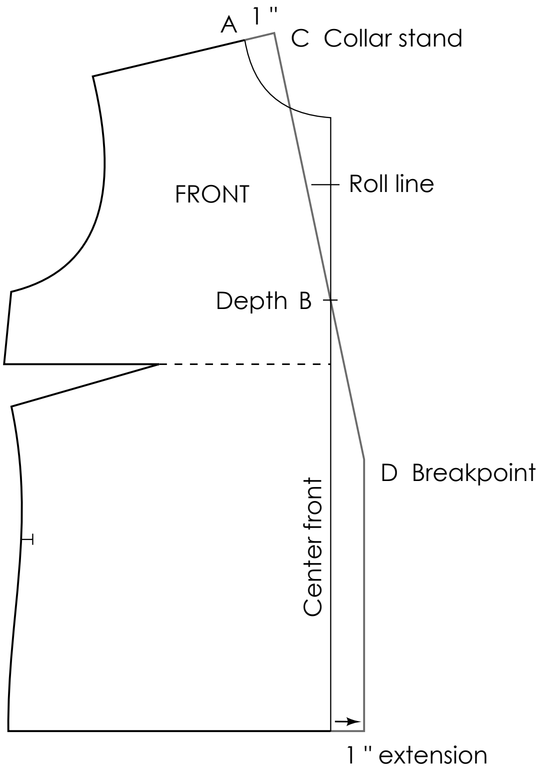

A
1 "
C Collar stand
FRONT
Roll line
Depth B
D Breakpoint
Center front
1 " extension

Figure 3 Lapel Development

- Following the curve of the traced neckline (broken line), extend curve 1 3/4 inches into the front of the jacket. Label E and mark for notch.

  E–F = 2 inches. (Place square rule at center front to draw line.)
- Draw a straight line from F to D. Redraw line, curving slightly outward.

Figure 2

- Fold paper along the roll line and trace the neckline and A–C line. Unfold paper.

Figure 2

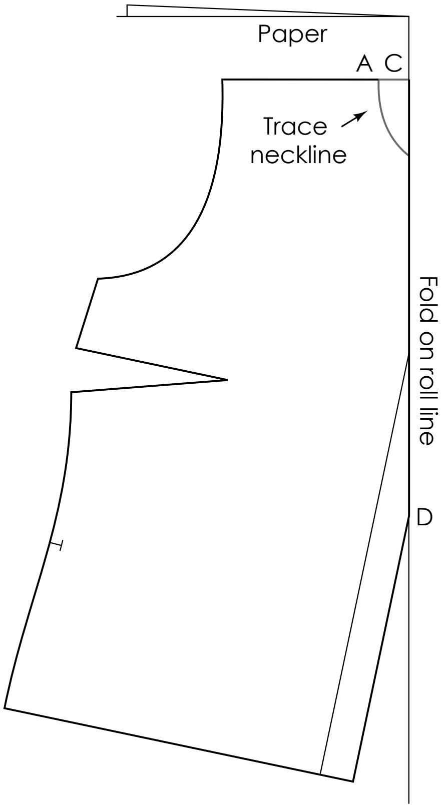

Paper
A C
Trace neckline
Fold on roll line
D

Figure 3

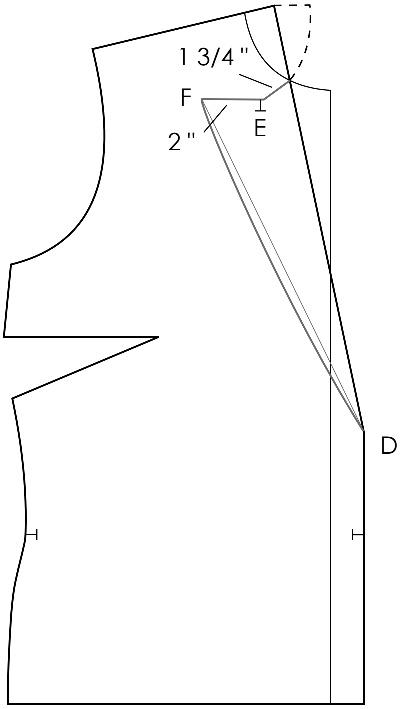


Figure 4

- Refold paper along the roll line, tracing a complete outline of the lapel (shaded area).
- Crossmark points E and D (notch placements). Unfold and pencil in lapel.

Figure 5a Collar Development

A–G = 1/4 inch. Mark.

G–I = Back neck measurement, plus 1/8 inch.
Locate measurement on a ruler and place at point G, with the ruler touching curve of the neck. Draw a line from this point to L, thus completing the back neck measurement.

G–J = One-half of G–I. Mark.

I–K = 1/2 inch squared from K.

Figure 5b

- Draw a line from J to K.

K–L = Square a line 2 3/4 inches up from J–K line to L. Square a short line from L.

Note: Letter H instruction was removed.

Figure 4

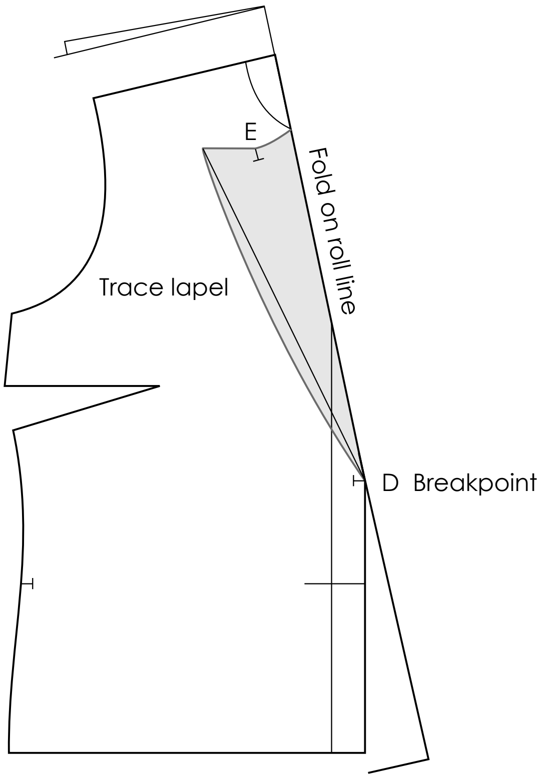

E
Fold on roll line
Trace lapel
D Breakpoint

Figure 5a

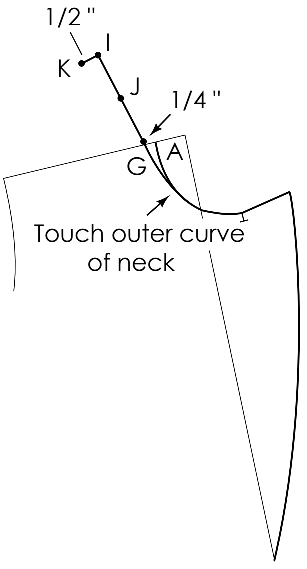

1/2"
I
K
J
1/4"
G
A
Touch outer curve of neck

Figure 5b

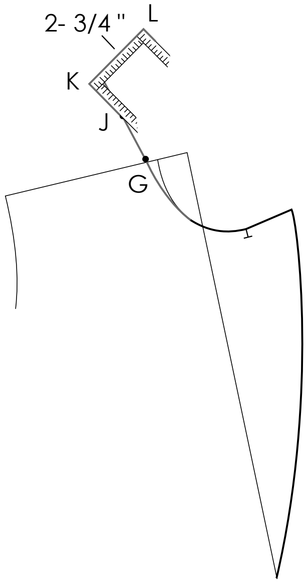


Figure 5c

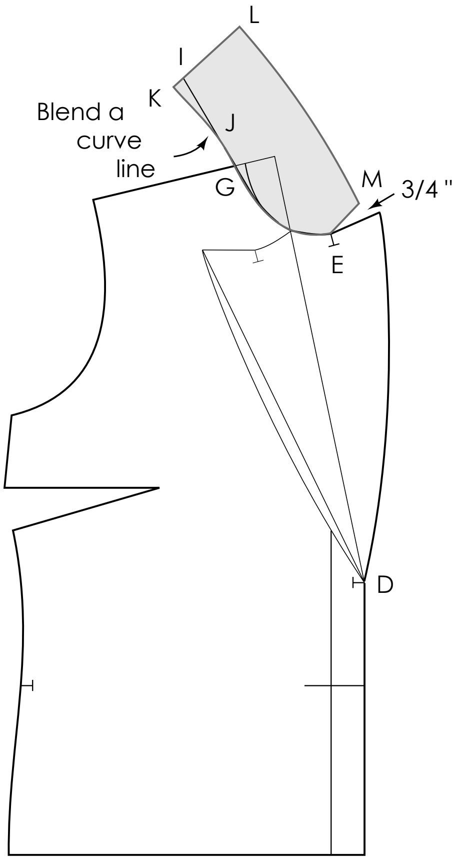

L
I
K
Blend a curve line
J
G
M
3/4"
E
D

Figure 5c

- Blend a curved line from K, J to G.
- Draw the collar edge from L parallel with back neckline.

E–M = Draw a line 1 3/4 inches, ending approximately 3/4 inch from lapel. This completes the basic jacket collar.

Figure 6

- Place paper underneath the draft and trace the collar. Crossmark G (notch at shoulder-neck placement). Draw roll line 1 inch up from center back of the collar and blend to roll line of lapel. (Broken lines indicate where the collar folds over when attached to the jacket.)

Figure 7 Completed Collar

- Remove paper and pencil in the collar.

Figure 6

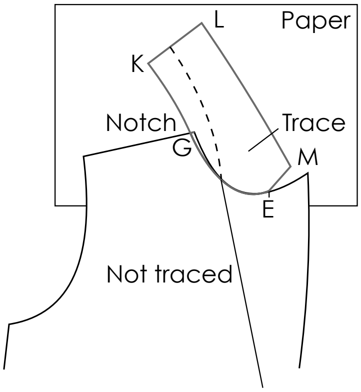
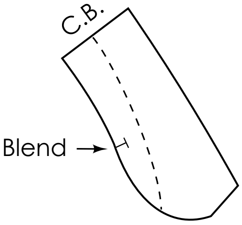

L
Paper
K
Notch
G
Trace
M
E
Not traced

Figure 7



Collar Modifications

Follow instructions if a lower stand and wider collar is desired. Broken lines show design variations.

Note: Spread may be increased for very bulky fabrics. Test fit collar before stitching complete garment.

Figure 9

- To modify the collar, divide the back collar into four equal parts.
- Cut slash lines from collar edge to, not through, the neckline edge and spread.

Figure 10 1/2-Inch Stand (Partial Roll)

Spread = 3/8 inch.

Collar width = 3 1/2 inches (shape as desired).

Trace and cut from paper.

Figure 11 1/8-Inch Stand (Flat Roll)

Spread = 1/2 inch.

Collar width = any width and shape desired.

Trace and cut from paper.

Figure 8

- Cut the jacket section from paper, following the original neckline curve (E to A, not E to G). (Broken line indicates where collar was drafted.)

Figure 8

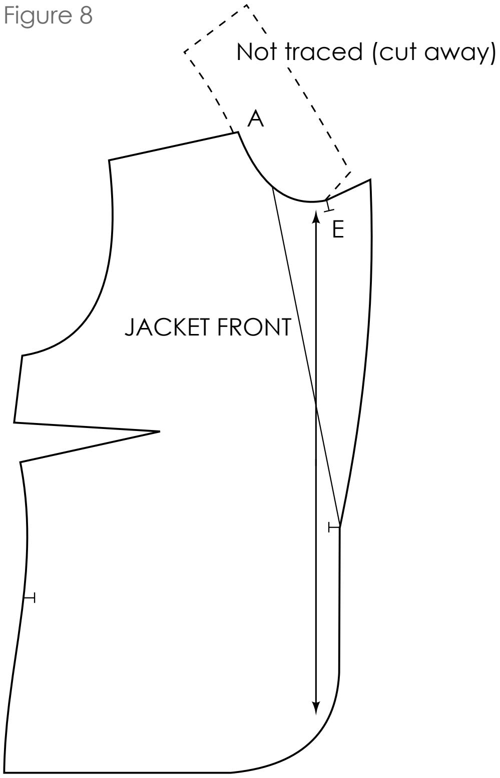

Not traced (cut away)
A
E
JACKET FRONT

Figure 9

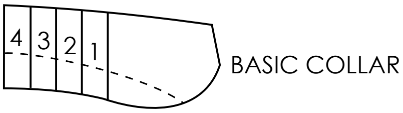

4
3
2
1
BASIC COLLAR

Figure 10

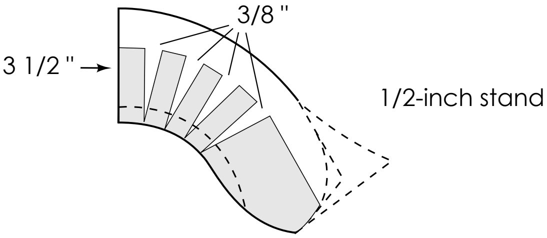
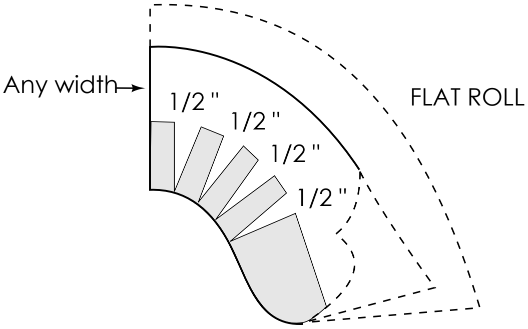

3/8"
3 1/2"
1/2-inch stand

Figure 11


Any width
1/2"
1/2"
1/2"
1/2"
FLAT ROLL

Low-Notch Lapel

Design Analysis

A new neckline is drawn to accommodate the low-notch lapel. If the neckline is drawn too close in proximity to the breakpoint of the jacket, the lapel may be too short and cause the jacket to be unflattering.

Measurement Needed

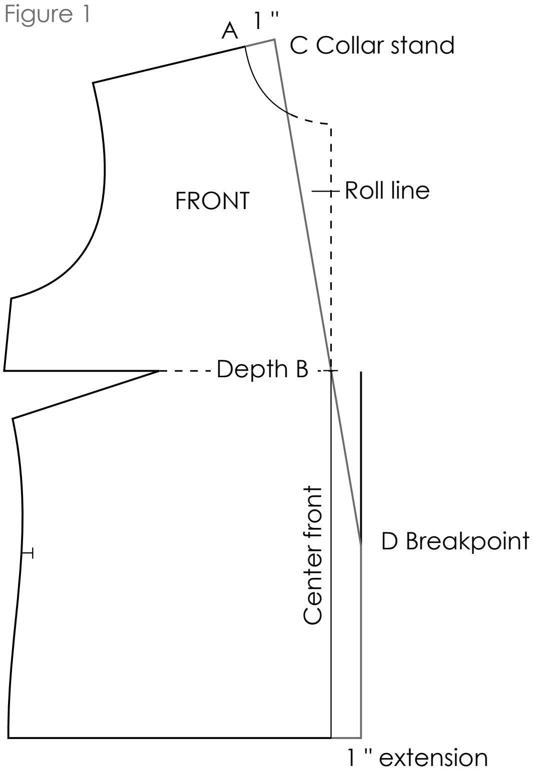
CB neck to shoulder, plus 1/8 inch (compensates for thickness of fabric and interconstruction).

Pattern Plot and Manipulation

Figure 1

- Trace the front and back jacket patterns (back not illustrated).
- Label shoulder/neck A and center front depth B (example: at bust level—point where lapels overlap).
- *Extension:* Draw a parallel line 1 inch from the center front, ending at level with B. (Extension should equal the diameter of the button.)
- A–C = 1 inch (collar stand). Draw a line from C through B, ending at extension (roll line). Label D (breakpoint of lapel).

Figure 1


A
1 "
C Collar stand
FRONT
Roll line
Depth B
Center front
D Breakpoint
1 " extension

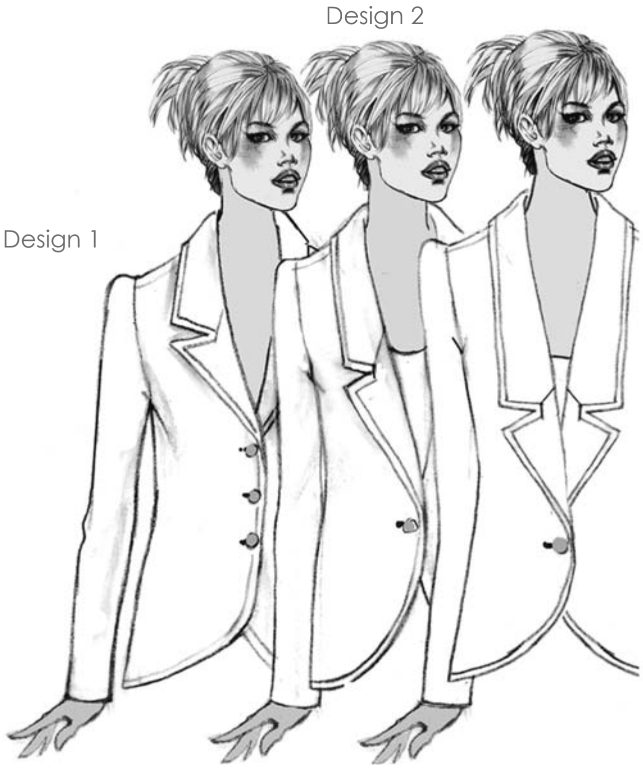

Design 2
Design 1

Figure 2 New Neckline Shape

- Fold paper along roll line. Draw a curved line for new neck from point A to fold line (Broken lines indicate other variations.) Draw a line between neck and bust level for the draft.
- Trace a new neckline and A–C line. Unfold the paper.

Figure 2

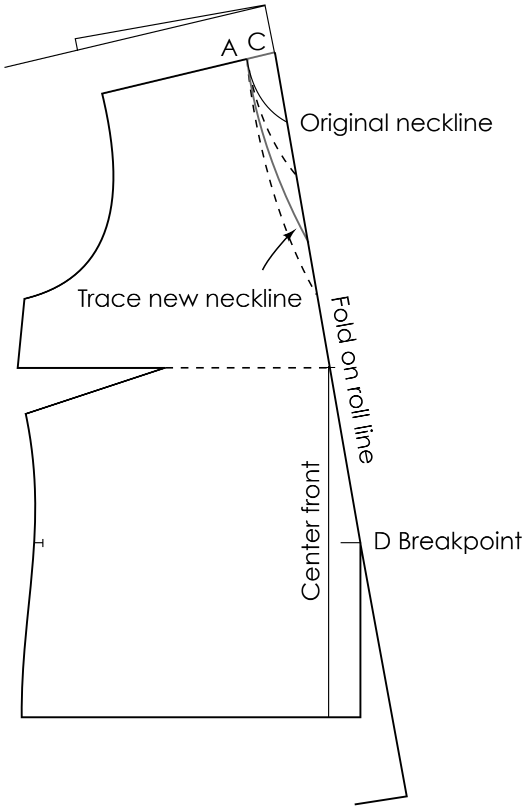

A
C
Original neckline
Trace new neckline
Fold on roll line
Center front
D Breakpoint

Figure 3 Lapel Development

- Following curve of the traced neckline (broken line), extend curve 1 inch (or more) into frame of the jacket. Label E and mark for notch.
- E–F = 2 1/2 inches (more or less). Connect F with D.
- Redraw the line, curving slightly outward, as shown.

Figure 4

- Refold the paper along roll line, tracing the complete outline of the lapel.
- Crossmark E and D (notch placement). Unfold and pencil in lapel.

Figure 3

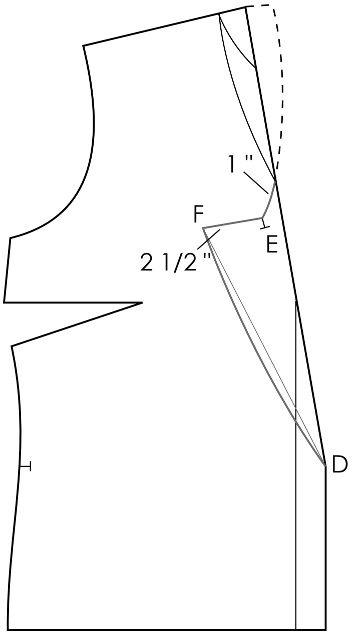


Figure 4

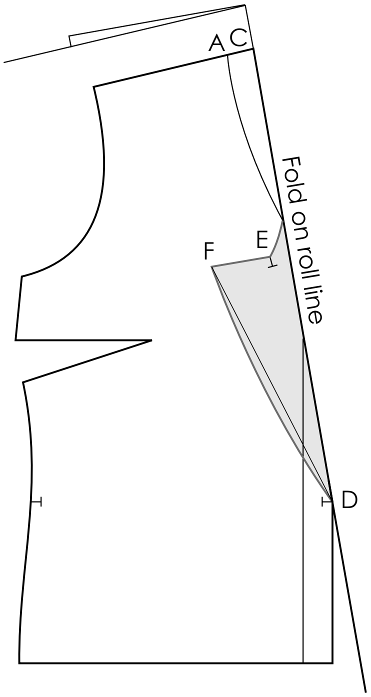


Figure 5 Collar Development

A–G = 1/4 inch.

G–I = Back neck measurement: Locate measurement on ruler and place at point G, with ruler touching the curve of the neckline. Draw a line from the curve to I, completing a back neck.

G–J = One-half of G–I. Mark.

I–K = 1/2 inch. Draw line from J to K equal to J–I.

K–L = 2 3/4 inches, squared from K–J line. Draw the collar edge parallel to the back neckline.

E–M = 2 inches wide and approximately 3/4 inch from lapel. Complete the collar shape.

Figures 6, 7

- Transfer collar from the draft. To modify collar, refer to instructions given for the basic notch, (turn back two pages to Figures 9 through 11).

Figure 5

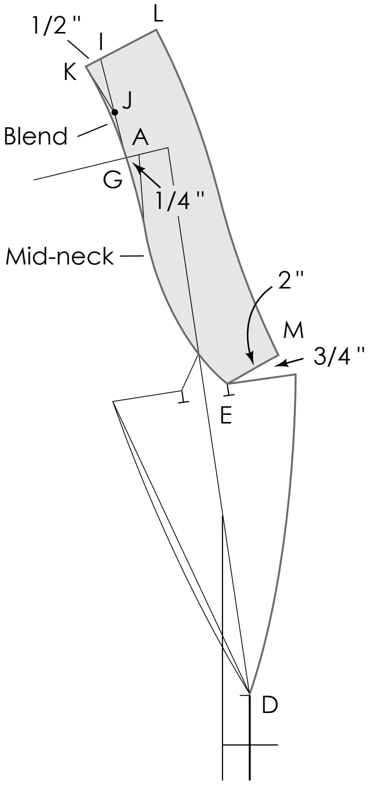
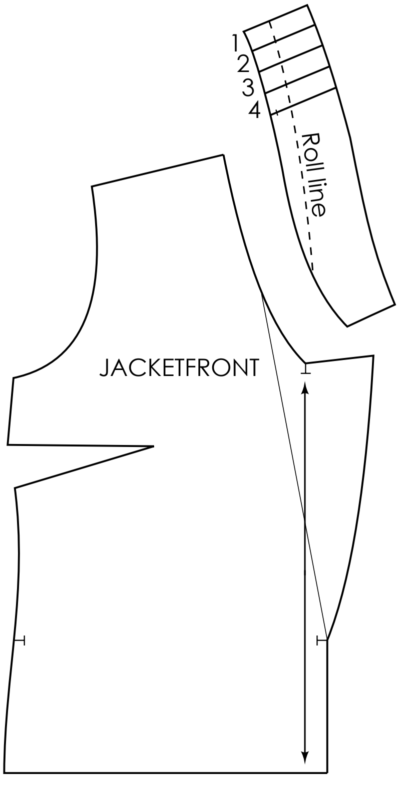


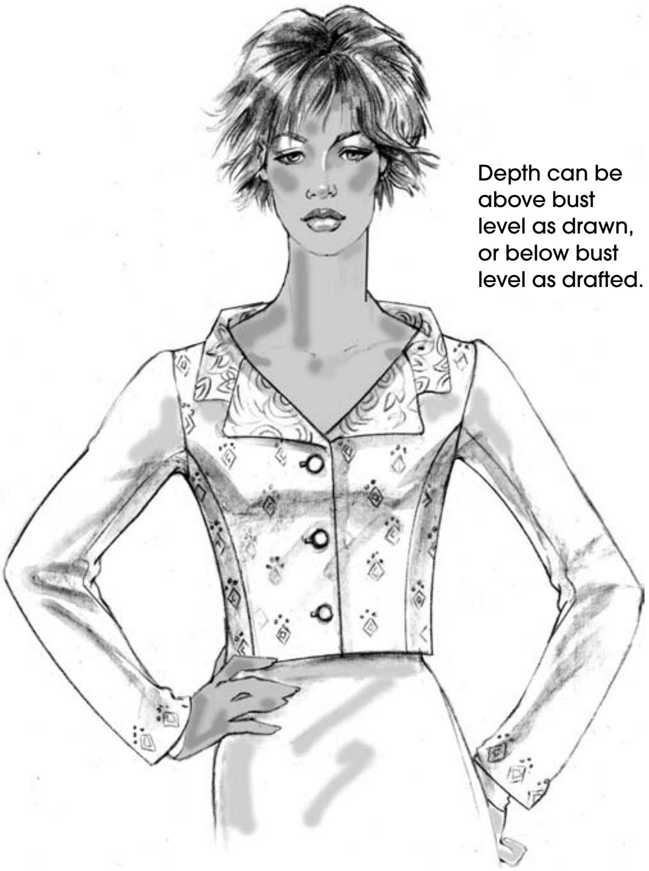
Figure 6 Figure 7



Portrait Collar and Lapel

Design Analysis

The collar/lapel is placed at a chosen distance from the shoulder/neck. This will require drafting a new neckline. The notch can be placed at or lower than neck level. After drafting the portrait collar/lapel, create your own design.



Depth can be above bust level as drawn, or below bust level as drafted.

Pattern Plot and Manipulation

Figures 1, 2

- Trace the front and back jacket patterns.
- Mark 2 inches from shoulder/neck. Label A.
- Draw the back neck, ending 3/4 inch down from center back. Measure the neckline plus 1/8 inch and record for collar development (Figure 2).
- Mark center front depth. Label B (example: bust level—point where lapels overlap).

Extension

- Draw a parallel line 1 inch from center front, ending at level with B. (Extension should equal the diameter of the button.)
- A–C = 1 inch (collar stand). Draw line from C through B to D (Breakpoint).

Neckline

- C–X = 3 inches (varies).
- Connect A to X. Draw a curved neckline approximately 1/8 inch out from mid-point, as shown.

Figure 3

- Fold paper along the roll line and trace a new neckline and A–C line.

Figure 1

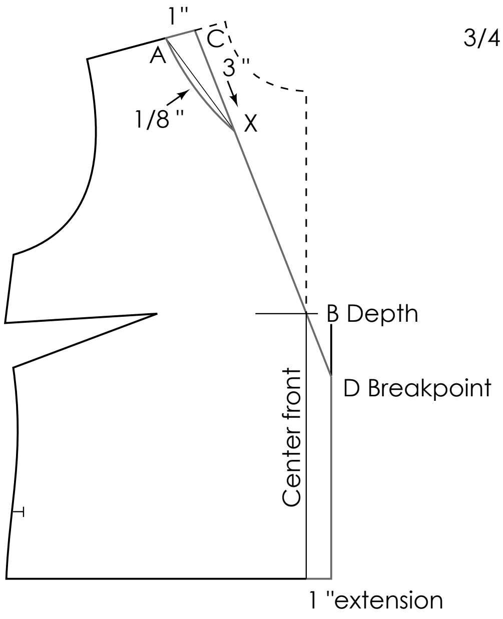


Figure 2

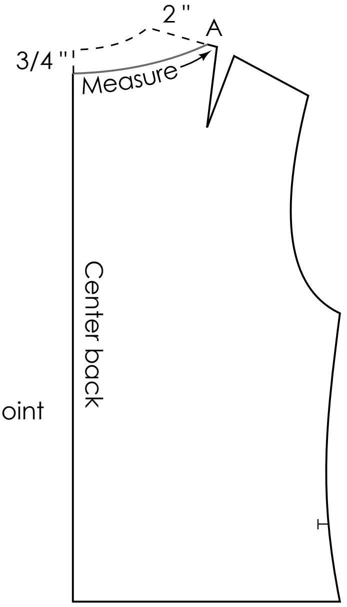


Figure 3

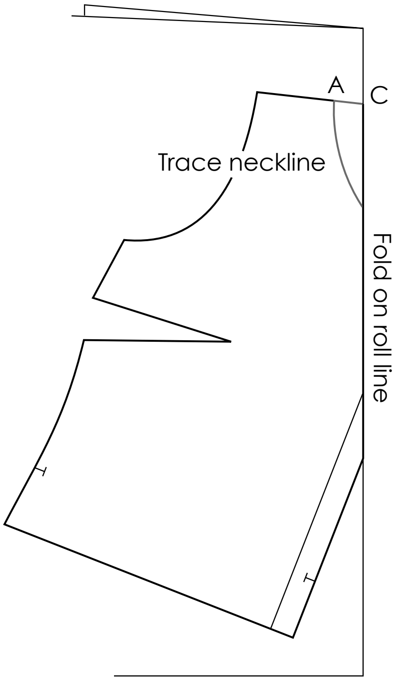


Figure 4

- Unfold the paper.
- Following the curve of the traced neckline (broken line), extend curve 3 inches into the frame of the jacket. Label E and mark for notch.
- E–F = 2 inches (more or less). Connect F with D. Redraw line, curving slightly outward as shown.

Figure 4

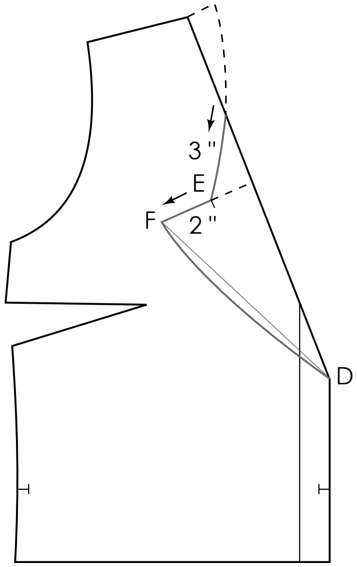
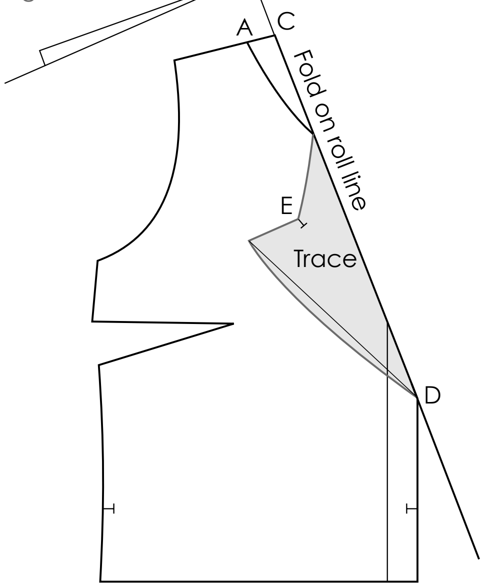


Figure 5

- Refold the paper along the roll line, tracing the complete outline of the lapel (shaded area).
- Crossmark E and D (notch placement). Unfold and pencil in the lapel.

Figure 5



Figures 7, 8 Finished Pattern Pieces

- Transfer collar from draft. To modify collar, refer to basic notch instructions. See Completing the Collar section later in this chapter for undercollar instruction.

Figure 6 Collar Development

A–G = 1/4 inch.

G–I = Find back neck measurement on ruler and place at point G, with ruler touching mid-neckline. Draw line.

G–J = One-half of G–I. Mark.

I–K = 1/2 inch. Draw line from J to K equal to J–I.

K–L = 2 3/4 inches, squared from K–J line. Blend back neckline at J. Draw collar edge, parallel with the back neckline.

E–M = 2 inches, ending approximately 3/4 inch from lapel. Complete the collar shape.

For lining and interconstruction, see Lining Patterns section later in this chapter.

Figure 6

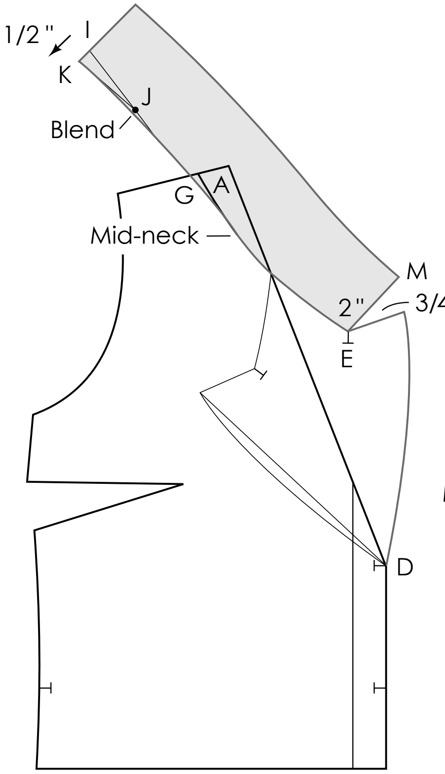
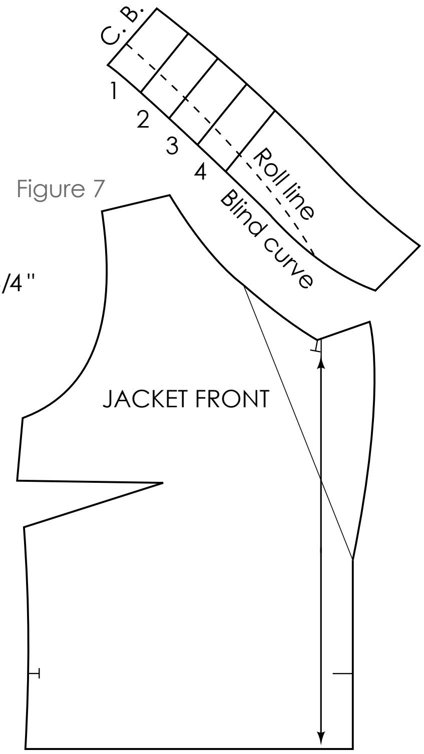
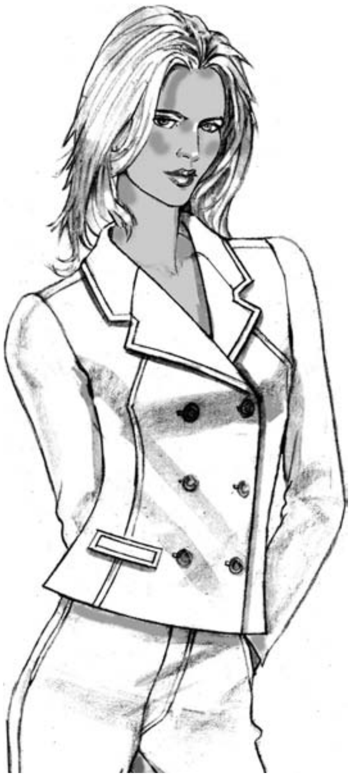


Figure 8

Figure 7



DOUBLE-BREASTED JACKET



Design Analysis

A double-breasted jacket has a wide extension to accommodate two rows of buttons. Excess is transferred to the center front to relax the open neckline. Follow the general instructions for collar lapel development, with the following modification:

- The front extension should equal at least three times the diameter of the button (or more, if desired). The breakpoint should be established before the roll line is drawn.

Note: The same instructions apply to double-breasted coats. (The sleeve and design details are not included.)

Pattern Plot and Manipulation

Figure 1

- Trace the front and back jacket or coat patterns (back not illustrated).
- Transfer 1/4 to 3/8 inch to center front from the side dart.
- Follow instructions for the basic notched lapel.
- Establish the center front extension: Draw a parallel line equal to three times the diameter of the button (example: 2 1/4 inches).
- Establish the desired breakpoint on the extension line (example: at waist level.) Connect with C (roll line). Label D (breakpoint).

Figure 2

- Complete the draft.

Note: Buttons are spaced at an equal distance from the center front. (For convenience, the facing is indicated by broken lines following the shape of the jacket.)

Figure 1

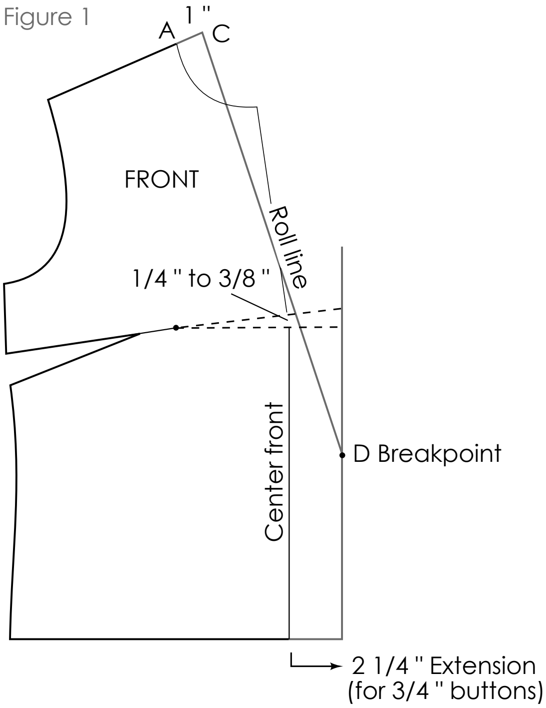
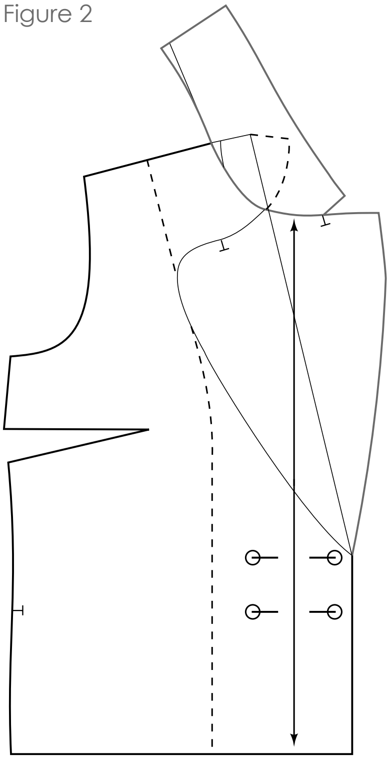


Figure 2

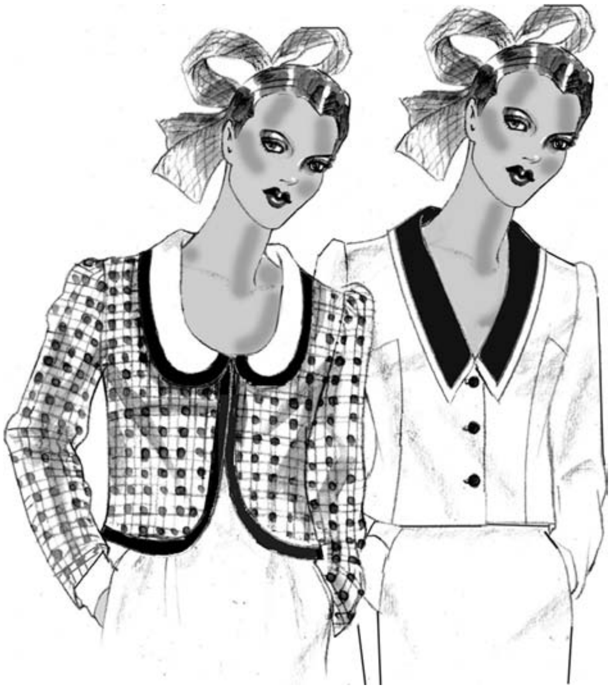


DESIGN VARIATIONS

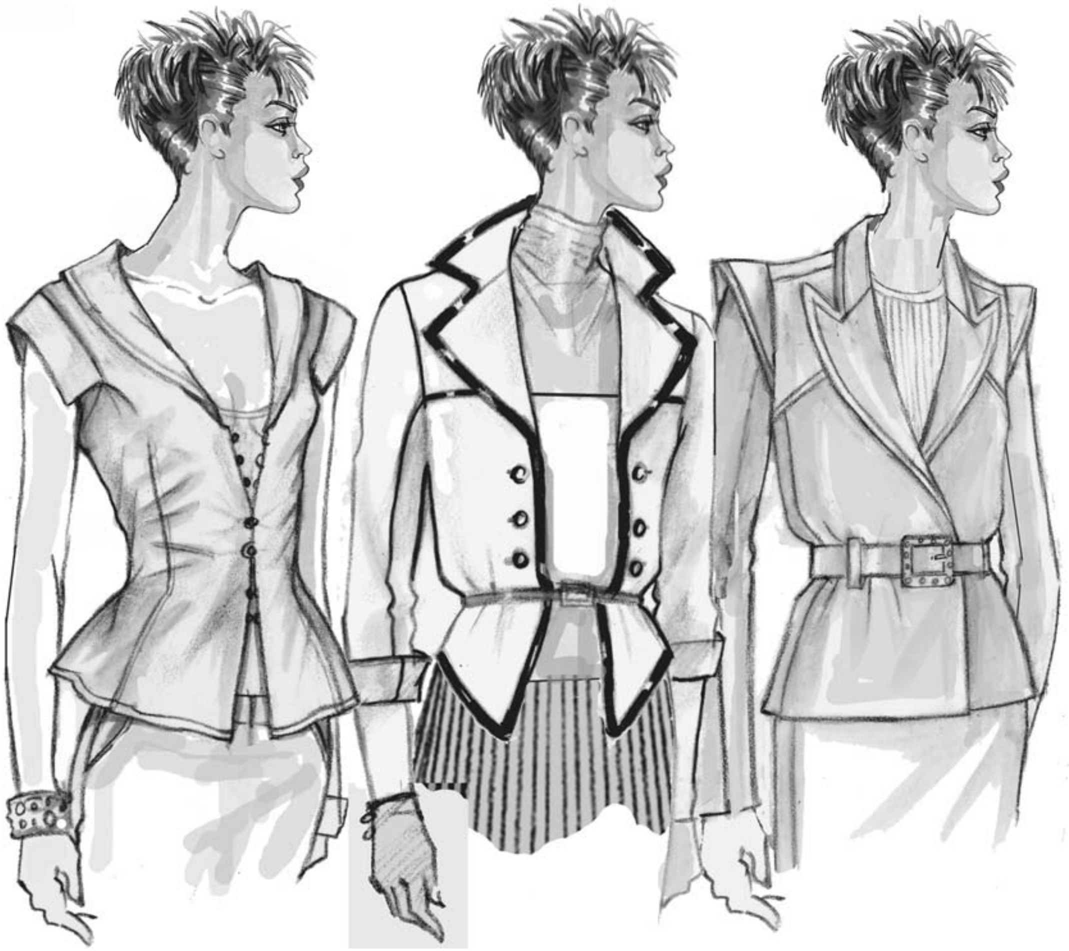
Other jacket or coat designs may feature collars or be collarless. The following designs are included for inspiration and as practice problems.

- Designs 1 and 2 feature cut-out necklines with collars.
- Design 3 features open neck, princess flare, and insets at shoulders.
- Design 4 has inset panel buttoned on one side with a peplum effect, plus short cuffed sleeve.
- Design 5 is a double-breasted wrap with lapeled jacket and extended shoulder insets.

Design 1 Design 2



Design 3 Design 4 Design 5



SHAWL FOUNDATION

The basic shawl collar lapel is developed in one with the front jacket. The collar extends beyond the shoulderline and attaches to the back neckline of the jacket. A hidden dart stitched under the lapel removes excess when the front neckline is not part of the collar. Shawl designs are developed by varying the shape between points H and D on the draft. Variations are illustrated in the series that follows. Apply instructions to the coat foundation for shawl designs. *Note:* The instructions also apply to shawl collars featured on blouses and dresses, with the hidden dart left unstitched.

Measurement Needed

Back neck measurement.

Figures 1 and 2 Shoulderline Modification

- Trace the jacket patterns, transferring the back shoulder dart to the neckline.
- Adjust the shoulder using measurements given (improves the roll of the collar). Label A at adjusted shoulder/neck.
- Measure the back neck; add 1/8 inch. Record __________.

Figure 1

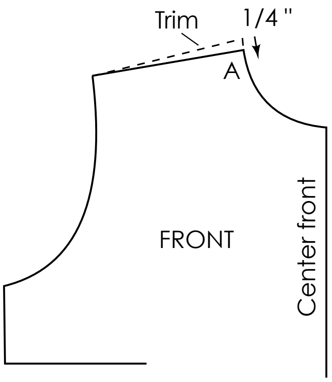


Figure 2

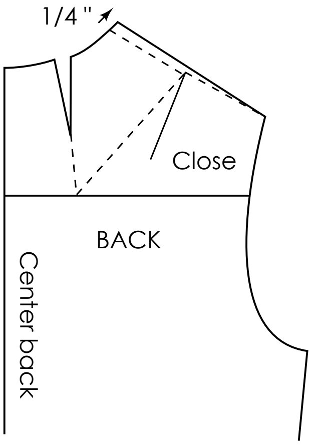


Figure 3

Draw a parallel line 1 inch from center front (button size determines width).

A–C = back neck measurement.

A–E = one-half of A–C mark.

C–F = 1/2 inch. Draw a line from F to E equal to E–C and blend E.

F–G = Square from F–E line 2 3/4 inches.

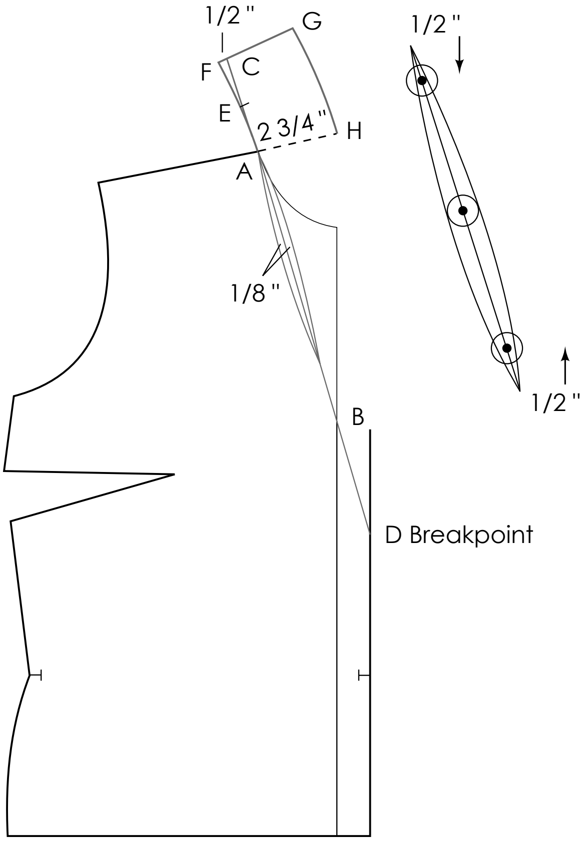
A–H = Draw the collar edge from G to H parallel with the curve of the back neckline.

Hidden Dart

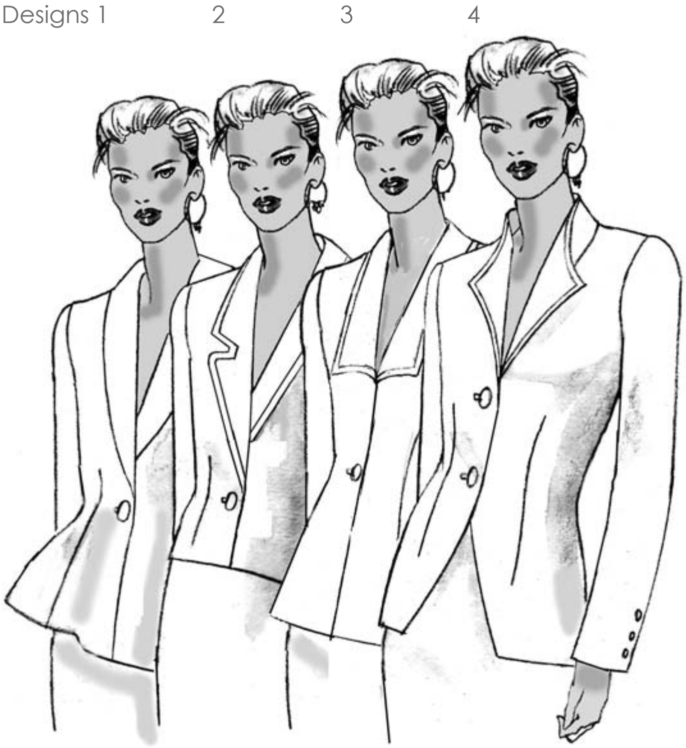
The hidden dart starts at A and the length is about 6 inches (can be shorter if the lapel does not cover). The intake may be increased, if necessary.

Note: The dart is not stitched on blouses, shirts, and dresses.

Figure 3



Shawl Collar Variations


Designs 1
2
3
4

Basic Shawl Lapel

Design 1

Figure 1—draw an outward curve from H to D.

Figure 2—notch where desired on curve line.

Figure 1

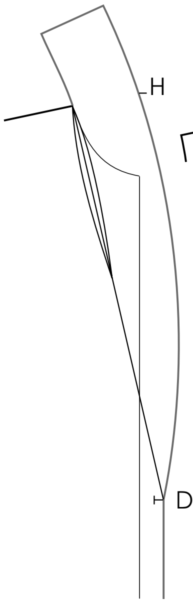
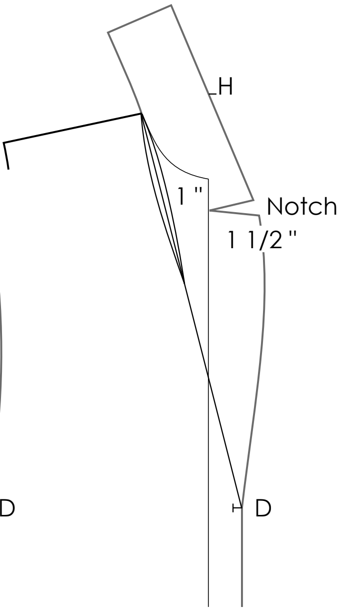


Figure 2


H
1 "
Notch
1 1/2 "
D

Winged Shawl Designs (Not Drawn)

Design 3a, b

Figure 3a—draw the winged style, as shown. Draw a line from side dart to the hidden dart. Cut through the seamline of the hidden dart and transfer the side dart. Seams: 1/4 inch (Figure 3b).

Figure 3a

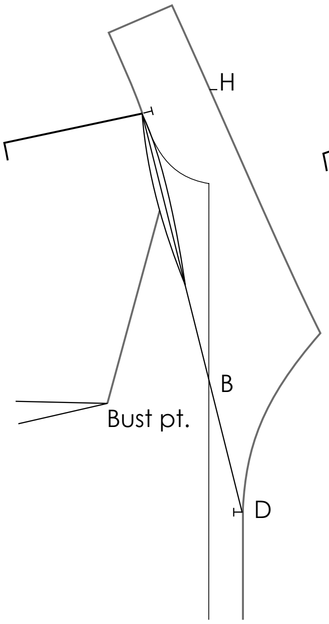
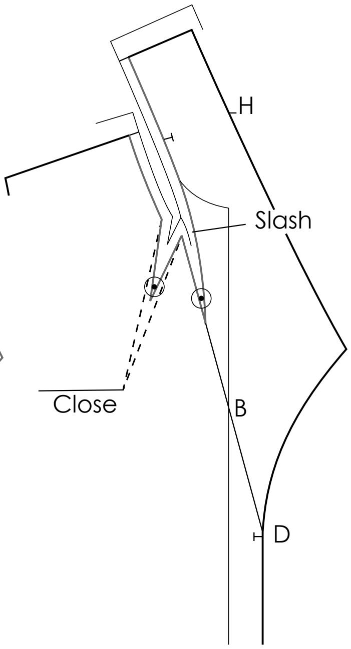


Figure 3b

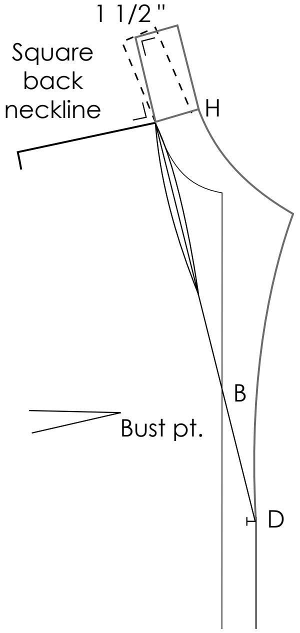

H
Slash
Close
B
D

Built-Up Back Neck

Design 4

Figure 4—square back neckline from shoulder. Center back collar width 1 1/2 inches. Draw collar shape (allow extra fabric around the collar shape). Adjust desired shape in the test fit.

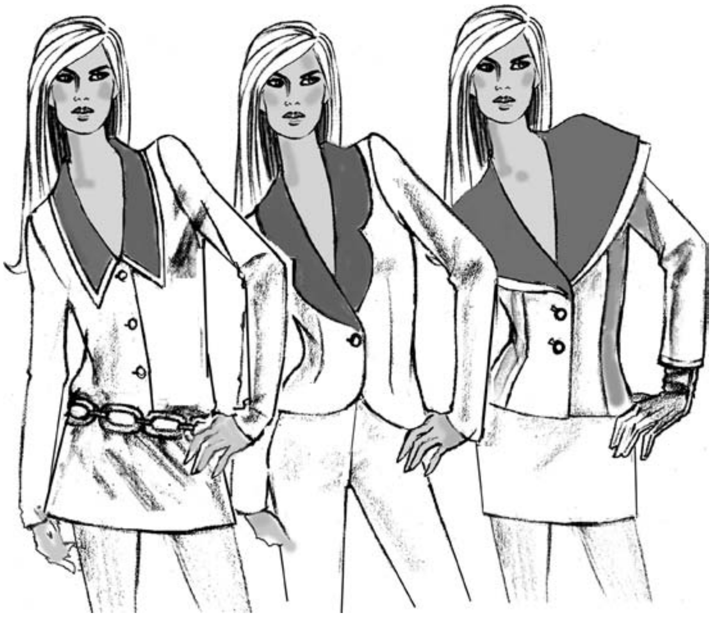
Figure 4


1 1/2 "
Square back neckline
H
B
Bust pt.
D

Wide Shawl Collars

Design Analysis

The technique for developing wide shawl collars requires modifying the back collar of the shawl draft. The collar may be developed with a 1/2-inch stand, with widths up to 3 1/2 inches along the back collar (below H, it may be of any width), or as a flat-roll collar of any width desired. A variety of lapel shapes can be designed from them, as suggested in the collar draft (indicated by broken lines). For practice, develop lapels for Designs 1, 2, and 3.



Design 1 Design 2 Design 3

Figure 1 Pattern Preparation

- Trace the back collar of the shawl.
- Divide into four equal parts.
- Cut from paper and slash from the collar edge to, not through, neckline edge.
- Trace shawl pattern, place slashed collar on draft, and spread as illustrated to vary collar width.

Figure 1

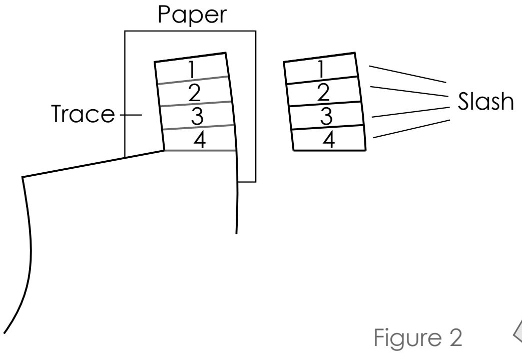

Paper
Trace
1
2
3
4
1
2
3
4
Slash

Figure 2

- Spread each section 3/8 inch.
- Draw width of the collar 3 1/2 inches.

Figure 2

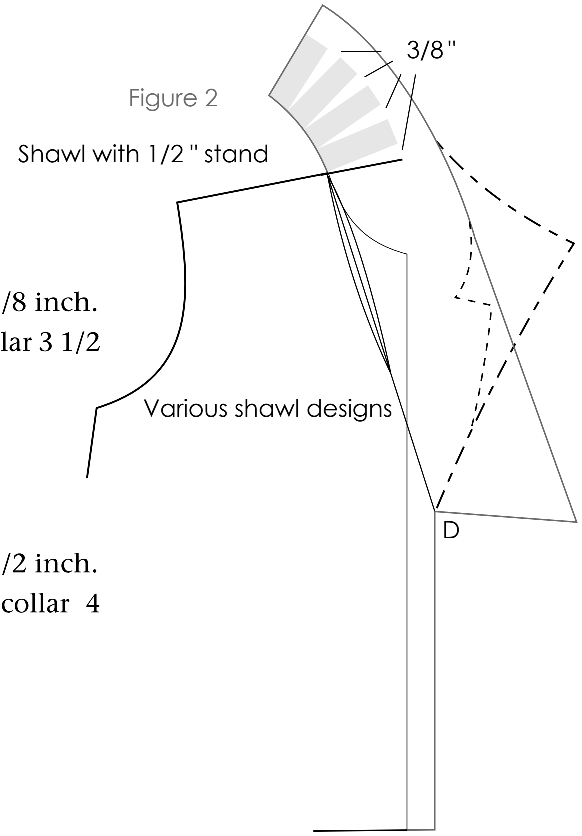
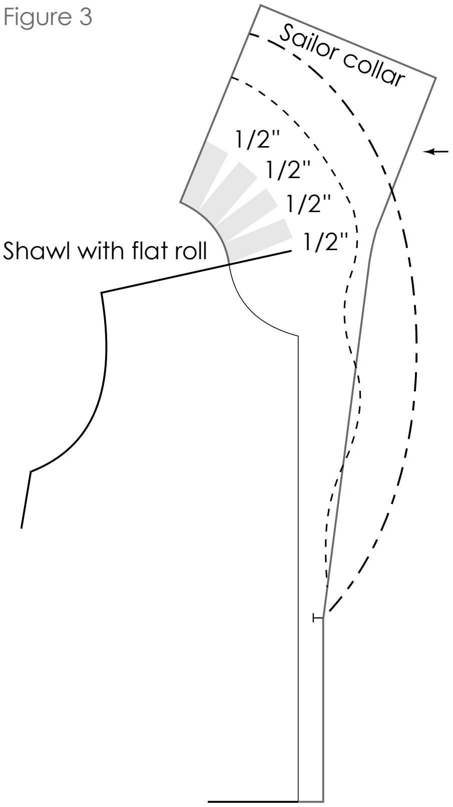

3/8"
Shawl with 1/2" stand
Various shawl designs
D

Figure 3

- Spread each section 1/2 inch.
- Draw width of the collar 4 inches or more.

Figure 3


Sailor collar
1/2"
1/2"
1/2"
1/2"
Shawl with flat roll

Shawl Collar with Separated Undercollar and Facing

Instructions apply to any shawl lapel design. The basic shawl with notch is illustrated.

Pattern Plot and Manipulation

Figure 1

- Trace the basic shawl pattern. Include hidden dart.
- Draw a notch anywhere along the shawl line and curve the lapel.

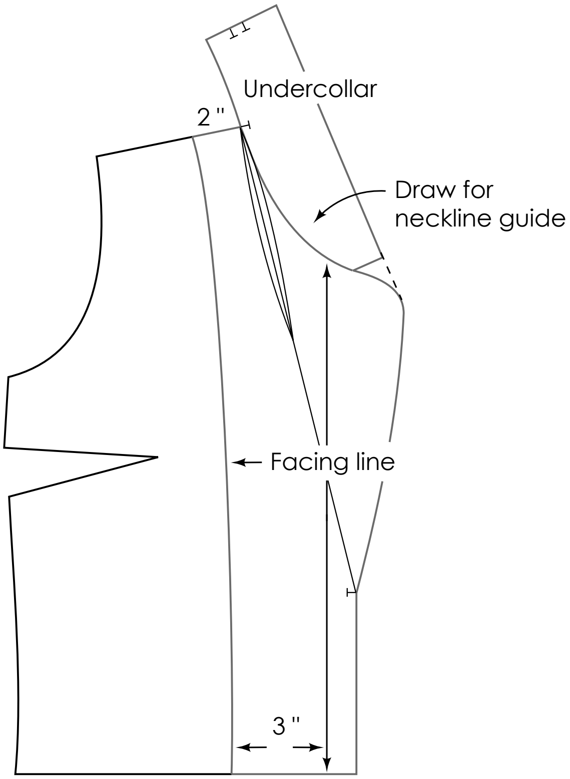
Undercollar

- Draw a curved line from shoulder-neck to notch location for the undercollar.
- Draw facing, starting 2 inches from shoulder-neck and ending 3 inches from center front at the hemline.

Figure 2 Facing

- Trace the facing section from the pattern.
- Extend center back collar 1/8 inch and blend to zero at the collar point.
- Add 1/8 inch at mid-point of the lapel. Blend to notch and breakpoint. (Broken line indicates the original pattern.)
- *Hidden dart:* The hidden dart may be removed between the facing and the lining by shifting the dart excess to the stitch line and trimming from the pattern. It may be stitched at its original location, or it may be left unstitched (not ideal).

Figure 1



Figures 3, 4

- Cut and separate collar from the jacket (becomes undercollar). Place punch and circles in the dart.

Figure 2

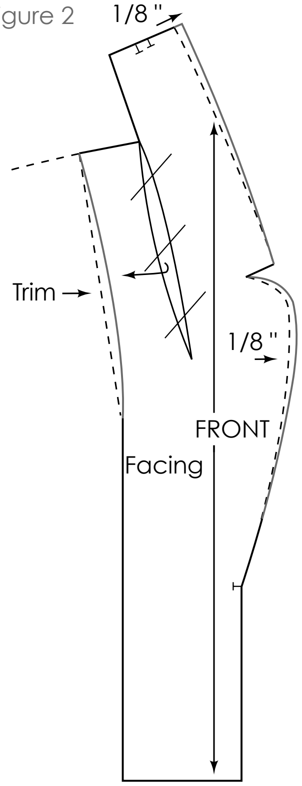


Figure 4

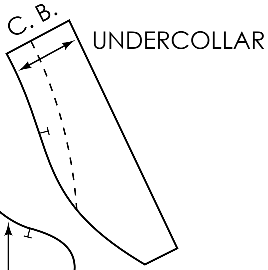
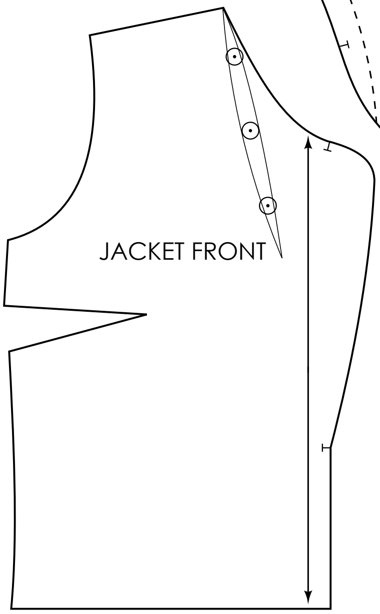


Figure 3



STYLE JACKET

Design Analysis

The jacket is designed as an armhole princess with a curved or squared hem and a basic notch collar. The sleeve can be one-piece or two-piece. The draft is based on the basic jacket foundation.

Instruction includes lining and facing patterns.

Pattern Plot and Manipulation

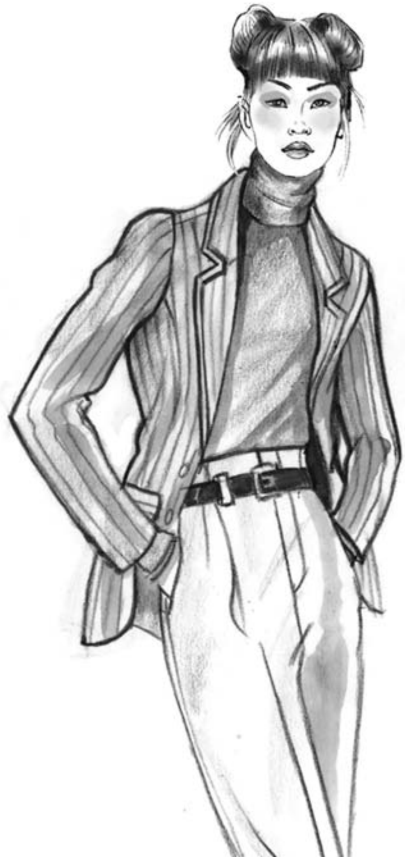
Figures 1a, b, c

Front

- Trace the jacket sleeve and basic notch collar. Set aside for use later.
- Trace the pattern 5 inches or more below the waist and add 1 1/2 inches for hem.
- Draw a styleline from mid-armhole to bust to hem and parallel to the center front.
- Draw a slash line from the dart point to the bust point and mark notches for ease control, as shown.
- Shape the waist dart using measurements given.
- The facing can follow the styleline or be directed to the shoulder (unequal broken lines).

Lining and Facing Notches

- Mark notches 1/2 inch up from the facing hem and lining. Label X.
- Select a curved or square facing hemline (Figures 1a and 1b).



Square Hemline

Extend the jacket hemline 1/2″ inch past the facing mark (shaded area) when the front is not interrupted by a princess styleline (Figure 1b).

Back

Repeat the process by following the illustration (Figure 1c).

Figure 1a

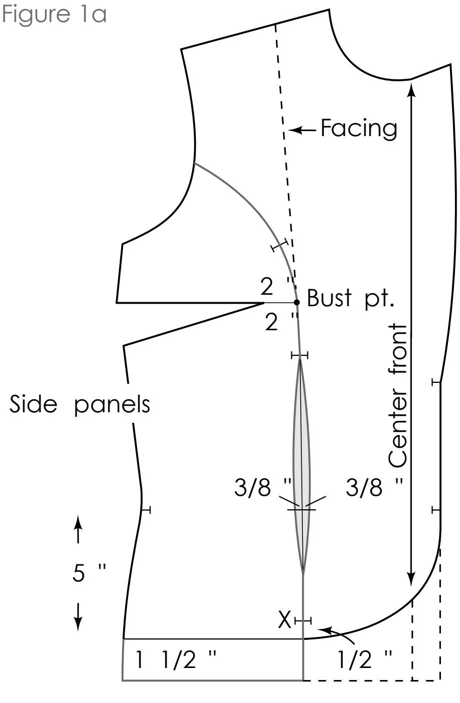


Figure 1b

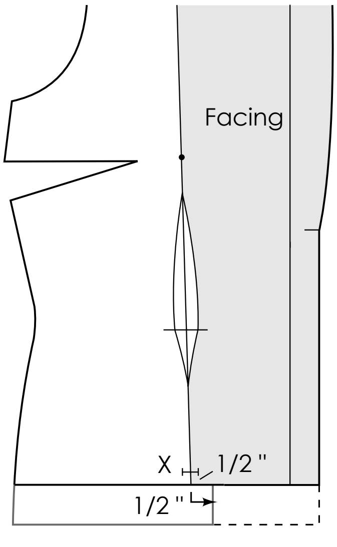
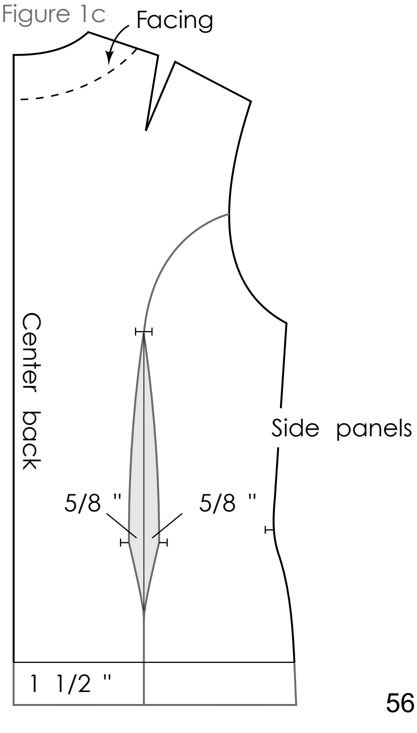


Figure 1c



Facing Patterns

Figures 2a, b, c

- Place paper underneath the pattern and trace the front facing and notches.
- Add 1/8-inch ease to the lapel and blend (Figure 2a).

Back

- Place a folded paper underneath the back pattern. Trace the back facing.
- Draw a pencil outline of the facing (Figures 2b and 2c).

Figure 2a

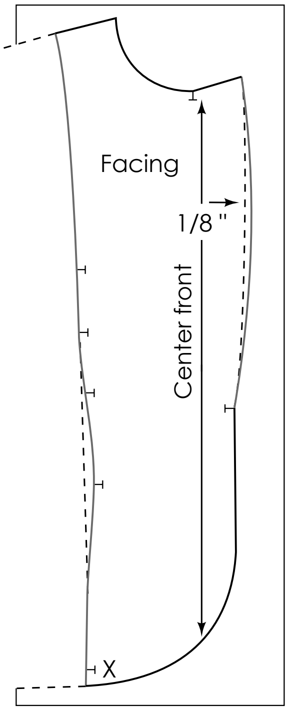

Facing
1/8 "
Center front
X

Figure 2b

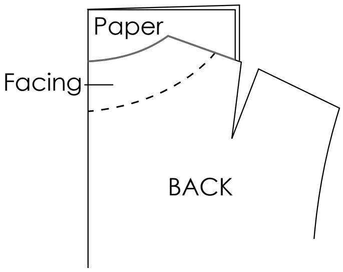
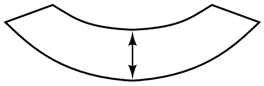

Paper
Facing
BACK

Figure 2c



Lining Patterns

Figures 3 and 4

- Extend shoulders 1/2 inch. Raise the armholes 1/2 inch. Draw the adjusted armholes.
- Add 1/4 inch at the side seams to zero at the hemline. Draw a lining hem allowance 1 inch up from the jacket hem. Notch 1 inch from the hemline fold (X). The broken lines are the untraced part of the patterns (Figure 3).
- *Back:* Remove the shoulder dart excess through the seamline of the lining (shaded area). Walk the lining with the facing and mark. From the mark, draw a line to the shoulder tip (Figure 3).

Figure 3

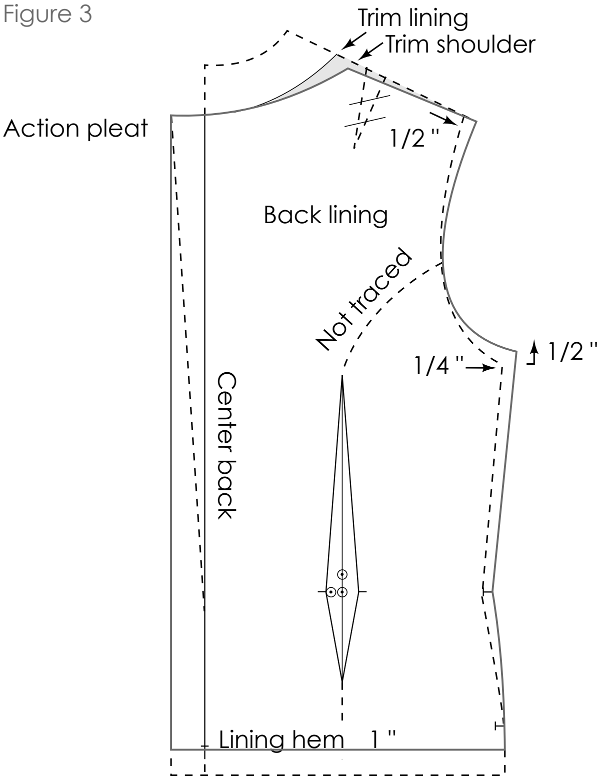
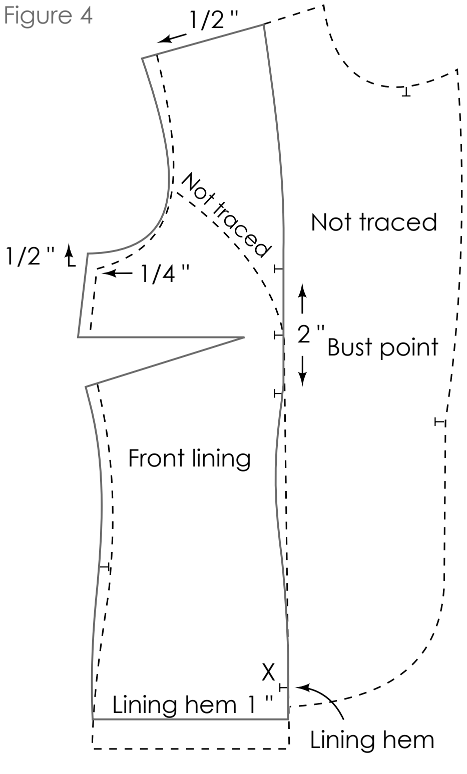

Trim lining
Trim shoulder
Action pleat
1/2 "
Back lining
Not traced
1/4 "
1/2 "
Center back
Lining hem 1 "

Figure 4


1/2 "
Not traced
Not traced
1/2 "
1/4 "
2 "
Bust point
Front lining
X
Lining hem 1 "
Lining hem

Lining—Side Dart Options

Figure 5

Slash 3/4 inch from the bust point and close the side dart. Blend bust area.

Figure 6

Transfer the dart between the princess line; fold as an action pleat.

Figure 5

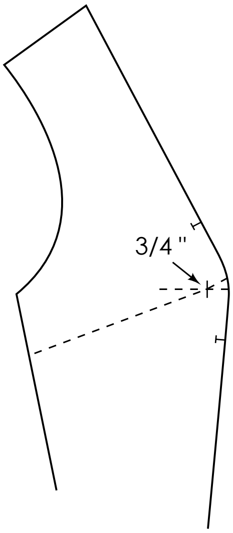
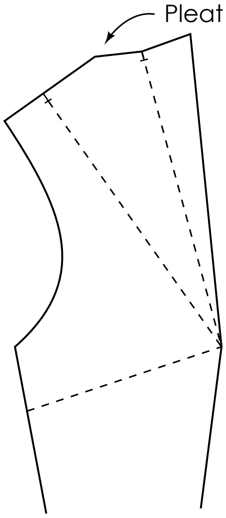


Figure 6



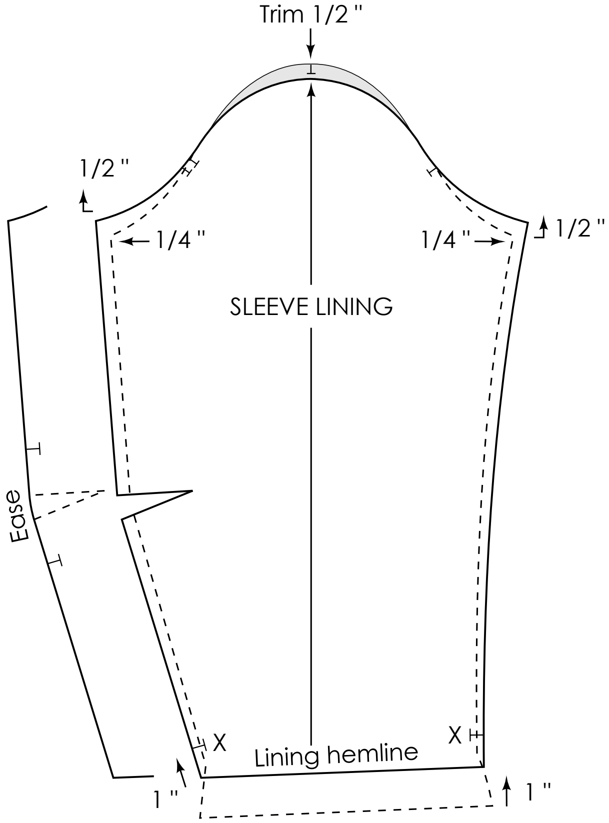
Sleeve Lining

Figure 7

- Trace the sleeve with 1-inch hem (broken lines).
- Trim 1/2 inch from the sleeve cap.
- Raise the armhole 1/2 inch.
- Add 1/4 inch at the underseams, ending 1 inch above the sleeve hem. Notch 1 inch up for the hemline fold.
- Blend the sleeve cap.

Note: The elbow dart can be stitched or folded as a pleat, or the excess can be eased when stitching the underseam. Ease controlled with notches.

Figure 7


Trim 1/2 "
1/2 "
1/4 "
1/4 "
1/2 "
SLEEVE LINING
Ease
X
X
Lining hemline
1 "
1 "

Completing the Collar

Figures 8a, b, c

Uppercollar

- Trace on fold. Add 1/8 inch at collar's edge (add 1/4 inch if cut in weighty fabric) (Figure 8a).

Roll Line

- Trace a pattern of the collar's roll line (Figure 8b).

Undercollar

- Draw two copies. Draw bias grainlines (Figure 8c).

Figure 8a

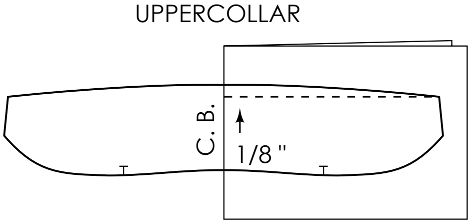

UPPERCOLLAR
C. B.
1/8 "

Figure 8b

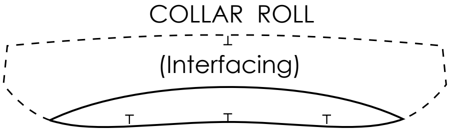
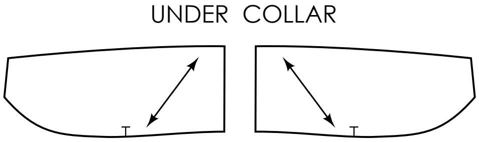

COLLAR ROLL
(Interfacing)

Figure 8c

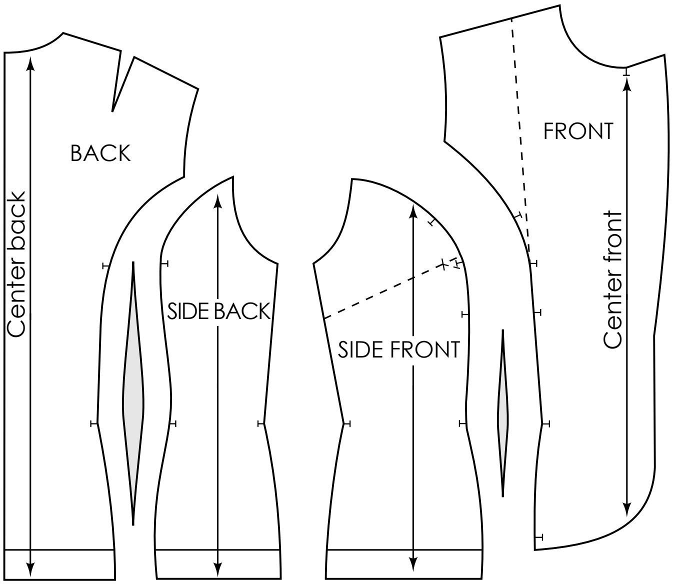

UNDER COLLAR

Separating Stylelines

Figure 9

- Cut patterns along stylelines.
- Slash 3/4 inch to the dart point and close the side dart. Blend the bust area.
- The dart (shaded areas) is discarded.
- The patterns should remain seamless until the lining, interfacings, and chest pieces are made. See Figure 1. (Experienced designers/patternmakers may choose to work with seamed patterns.)

Figure 9


BACK
Center back
SIDE BACK
SIDE FRONT
FRONT
Center front

Additional Information

Figure 10

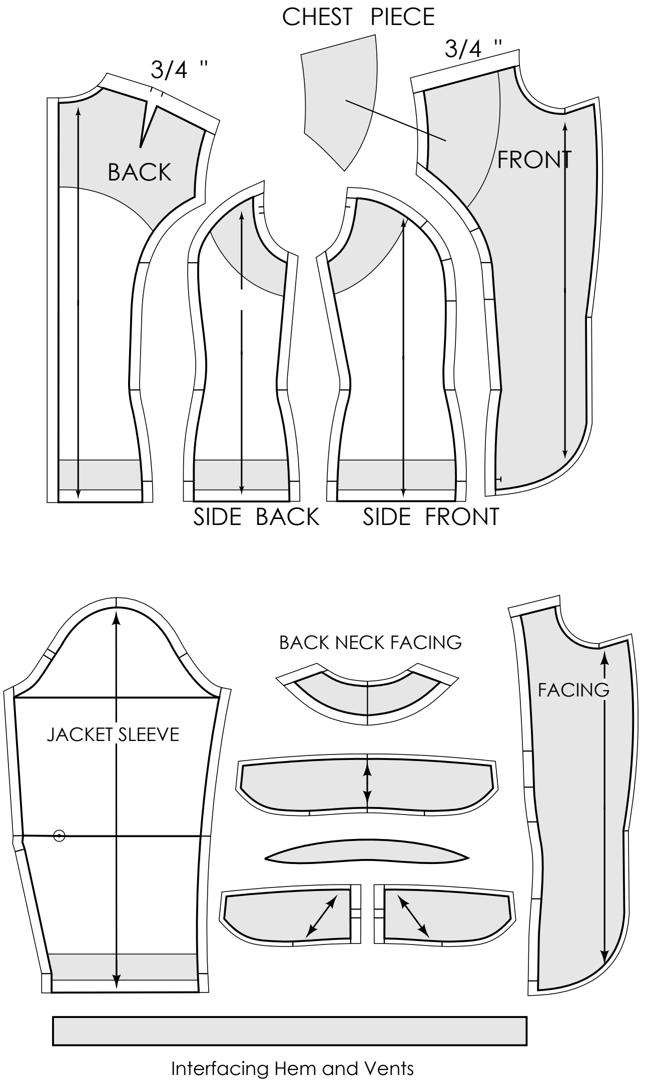
The first fitting should be cut in muslin with a seam allowance added to the muslin. At this time, the shoulder should be adjusted if the shoulder pad is thicker or larger than the 1/4-inch allowance. The lining is not adjusted for shoulder pads. Refer to the last page of this chapter for guidance.

Interfacing patterns and chest pieces are made before seams are added. Interfacings can end at the stitchline, extend 1/8 inch beyond stitchline, or cover the complete garment except for the sleeve.

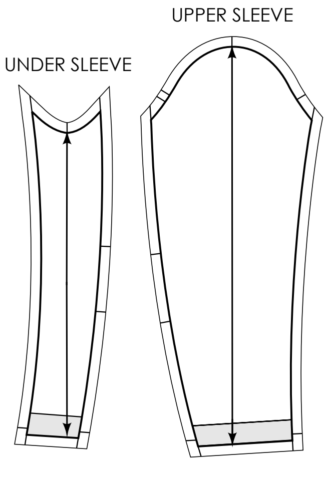
After the fitting and corrections are made, add seams to the pattern.

Seam Allowance Add 1/4 inch to neckline and lapel. Add 1/2 inch to all other seams, including the lining patterns. See "Evaluating the Fit of the Jacket" section at the end of this chapter.

Figure 10


CHEST PIECE
3/4 "
3/4 "
BACK
FRONT
SIDE BACK
SIDE FRONT
JACKET SLEEVE
BACK NECK FACING
FACING
Interfacing Hem and Vents

Sleeves Choose the two-piece, or one-piece sleeve for the jacket.


UNDER SLEEVE
UPPER SLEEVE

ONE-PIECE JACKET/COAT FOUNDATIONS

The one-piece foundation is the base for developing jacket designs without side seams. The wrap-around and three panel jackets are traditional styles that are examples of such designs. The one-piece foundation is not limited to the styles illustrated. The designer has more freedom in the placement of stylelines using this foundation. The collar and lapels have a masculine touch. A tailored two-piece sleeve is illustrated.

One-Piece-Foundation Draft

Figure 1

Back: Taper center back, and blend shoulder.

Front: Transfer side dart to mid-shoulder. Tab next page for transferring dart to neckline after collar and lapel has been drafted. The dart excess can be transferred to the armhole, increasing the armhole measurement. The sleeve cap is affected.

- Draw a horizontal guideline on paper.
- Place the back pattern on the guideline and trace.
- Place the front pattern on the guideline, with the armholes touching, and trace. If heights of the armholes differ, equalize and blend. Mark notch 1/4 inch to the front armhole to indicate the side seam.
- Combine front waist dart, as shown.

Note: The side seams at the hemline may not touch. If this results in a garment that is too loose or too tight, make adjustments at the seam of the stylelines at first fitting.

Completed One-Piece Foundation Pattern

Figure 2

The foundation pattern is now complete. Do not separate the foundation. It does not need a seam allowance unless you prefer one. The foundation is to be traced for designing.

Figure 1

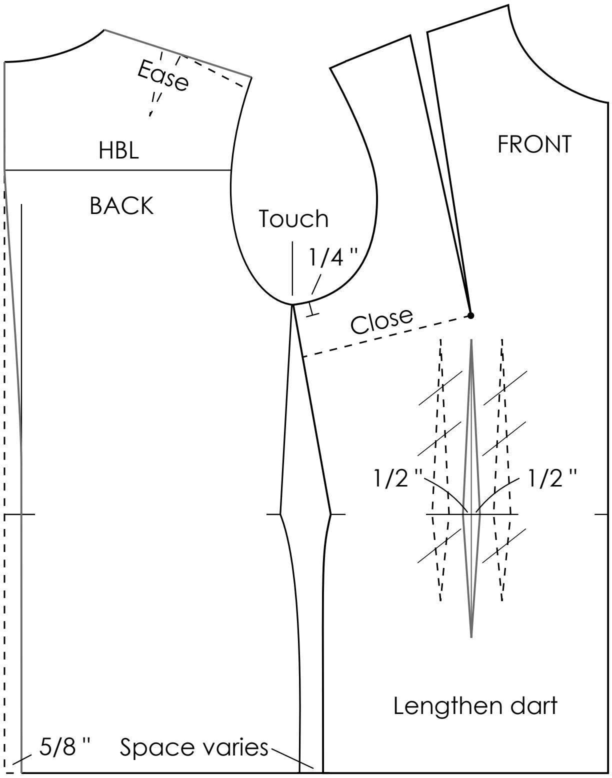
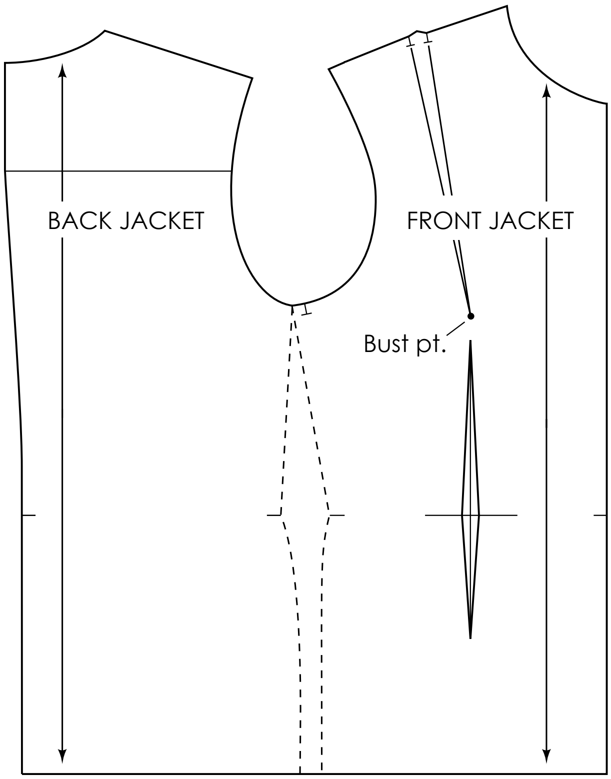
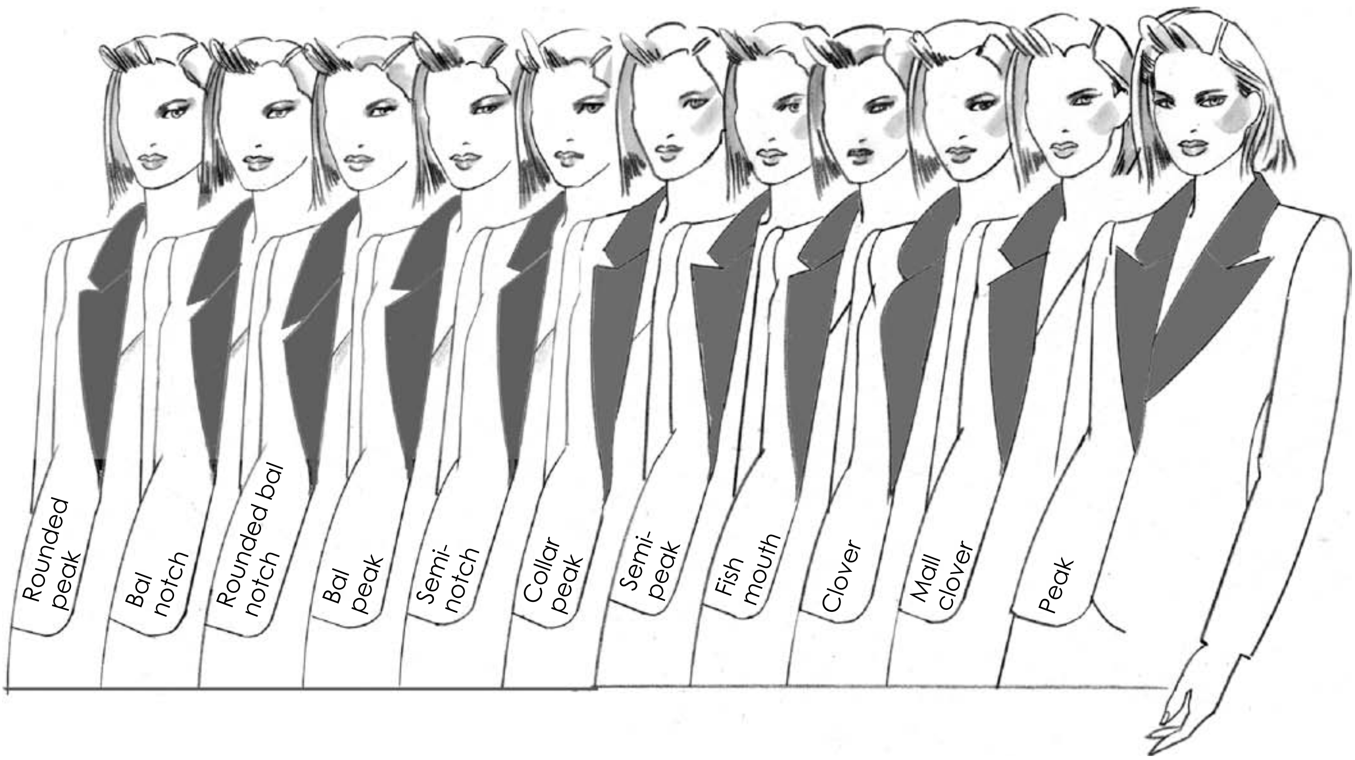


Figure 2



Collar and Lapel Styles for the Tailored Jacket

A selection of standard tailored collar/lapels is shown below. The semi-notch is illustrated. Choose from among them to complement other jacket designs.


Rounded peak
Bal notch
Rounded bal notch
Bal peak
Semi-notch
Collar peak
Semi-peak
Fish mouth
Clover
Mall clover
Peak

Transferring Dart to Neckline

Modify the neckline *after* the collar is drafted.

Figure 1

- Draw a slash line from bust point to corner of the neckline. Slash shoulder to the bust point.

Figure 2

- Slash neckline to bust point; close dart and redraw dart legs, ending 3 1/2 inches from neckline.

Figure 1

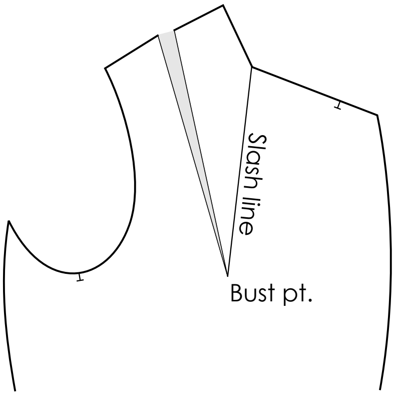
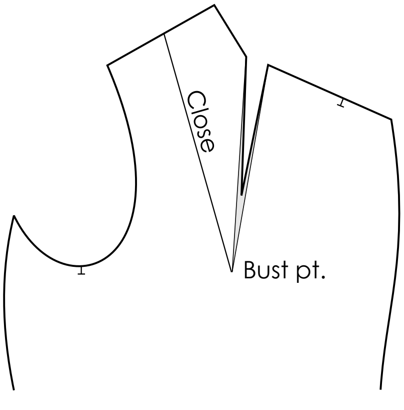

Slash line
Bust pt.

Figure 2


Close
Bust pt.

Tailored Collar

Figure 1

Trace the chosen front foundation jacket pattern.

- Draw a 1-inch extension line parallel to the center front.
- Mark a breakpoint 3/4 inch below the waist (varies). Label B.
- Draw a 1-inch line from A. Label C.
- Draw a line from C to B (roll line ending at the breakpoint).

Figure 2

- Mark D and E 5/8 inch below the neck and center front.
- Draw a line from E to D, extending 3/4 inch (G) and 2 3/4 inches (F).
- Draw a line from F to B and redraw an outward curved line.
- Square a line from the shoulder (A) equal to the back neck, plus 1/8 inch (H).

Figure 3

- Mark 3/4 inch from H. Label I.
- Draw a line from A to I equal to A–H. Blend at point A.
- Square up 2 3/4 inches from I. Label J and square a short line.
- Mark 3/4 inch from E and draw line 1 1/2 inch spaced 1 inch from F.
- Draw the collar's edge parallel to the back neckline.

Completing the Collar

Figure 4

Follow the examples to complete the collar.

Figure 4

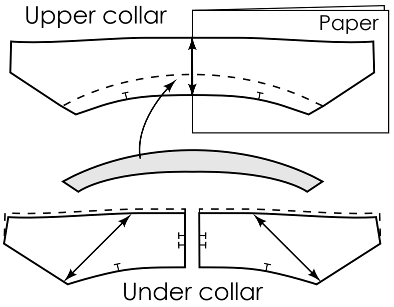

Upper collar
Paper
Under collar

Figure 1

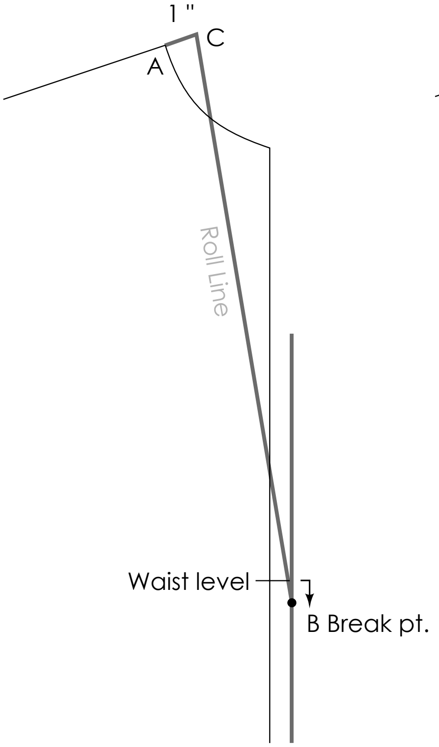

1 "
C
A
Roll Line
Waist level
B Break pt.

Figure 2

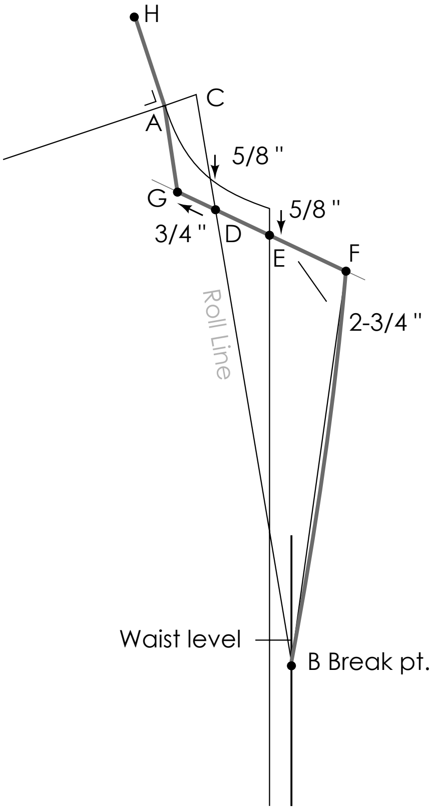
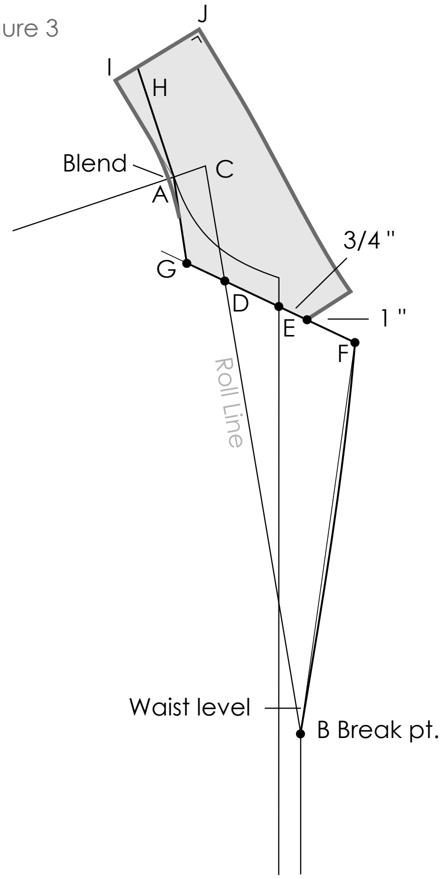

H
C
A
5/8 "
G
5/8 "
3/4 "
D
E
F
2-3/4 "
Roll Line
Waist level
B Break pt.

Figure 3


J
I
H
Blend
C
A
3/4 "
G
D
E
1 "
F
Roll Line
Waist level
B Break pt.

The Wrap-Around Style

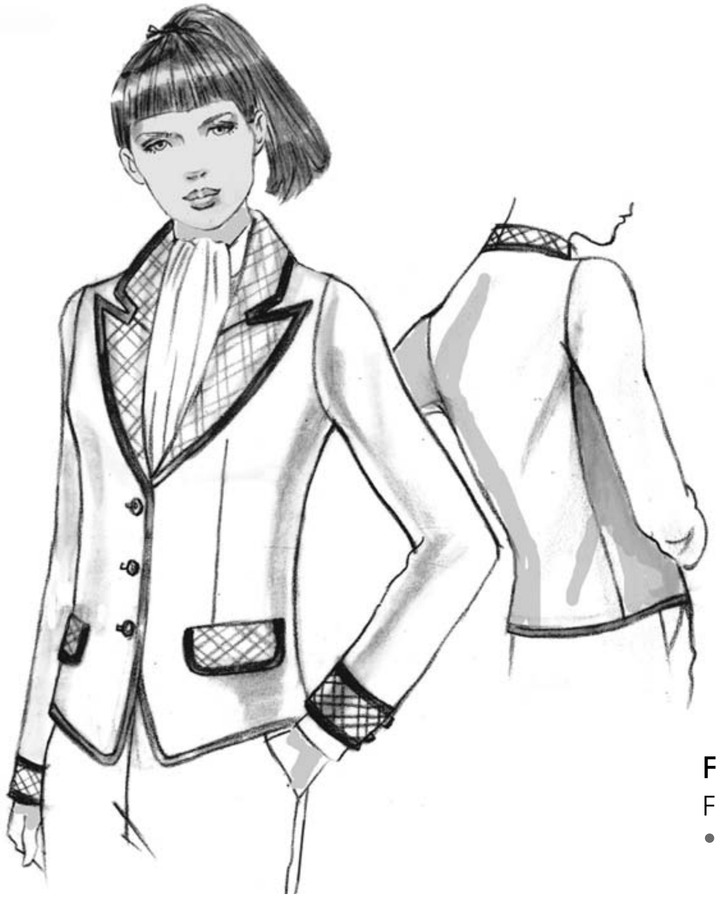
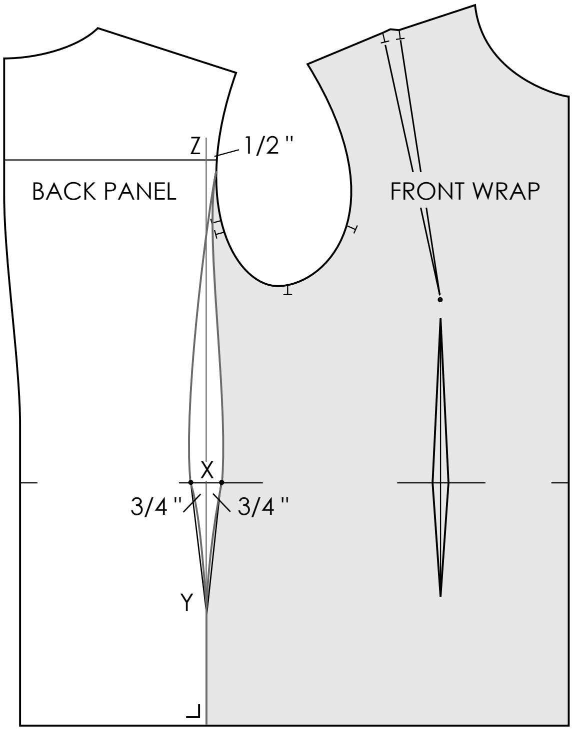


Figure 1



Finished Wrap-Around Patterns

Figure 2

- Cut panels from paper. Discard excess.

Design Analysis

The style seam wraps to the back. Waist darts give a slight shape to the loosely fitted jacket. (The shoulder dart will be transferred to the neck after the collar and lapel have been drafted.) See collar/lapel designs two pages back. Choose a design detail to enhance the jacket.

The Wrap-Around Draft

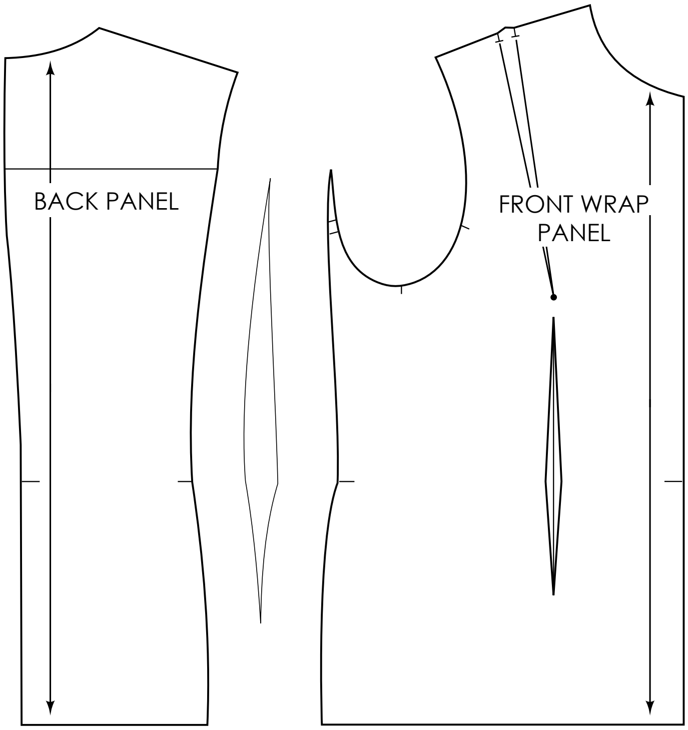
Figure 1

- Trace the one-piece jacket and two-piece sleeve.
- Mark the desired hem length, plus 1 1/2 inches for the hem allowance.

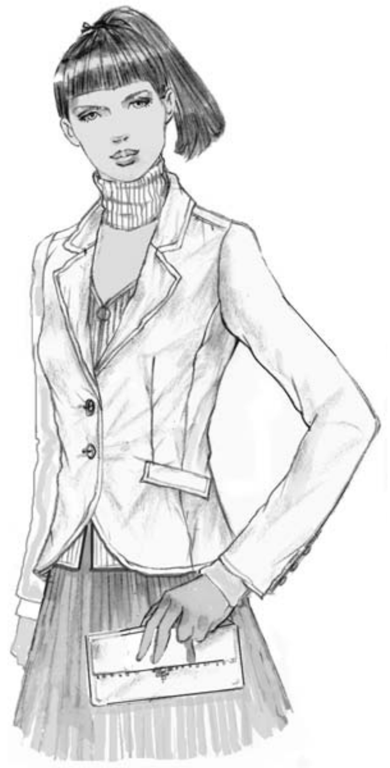
Styleline: Square a guideline from the hem, ending within 1/2 inch of the armhole. Mark Z.

- Mark the waist level X.
- Mark 3/4 inch out from each side.
- Mark Y 5 inches down from X.
- Draw outward curved lines to Y and inward curved lines from X, ending at the armhole just below Z level, as shown.

Figure 2



THE THREE PANEL STYLE



Design Analysis

The three panel jacket is the base for the design. The length is 7 inches below the waist and the hemline is curved. One button is the closure. A two-piece vented sleeve and rounded pocket complete the design. (Add creative details to enhance the jacket.) Instructions for constructing the jacket follow.

The Three Panel Draft

Follow instructions given for the wrap-around style, previous page. Return and continue with the draft.

Front Jacket

Figures 1a, b

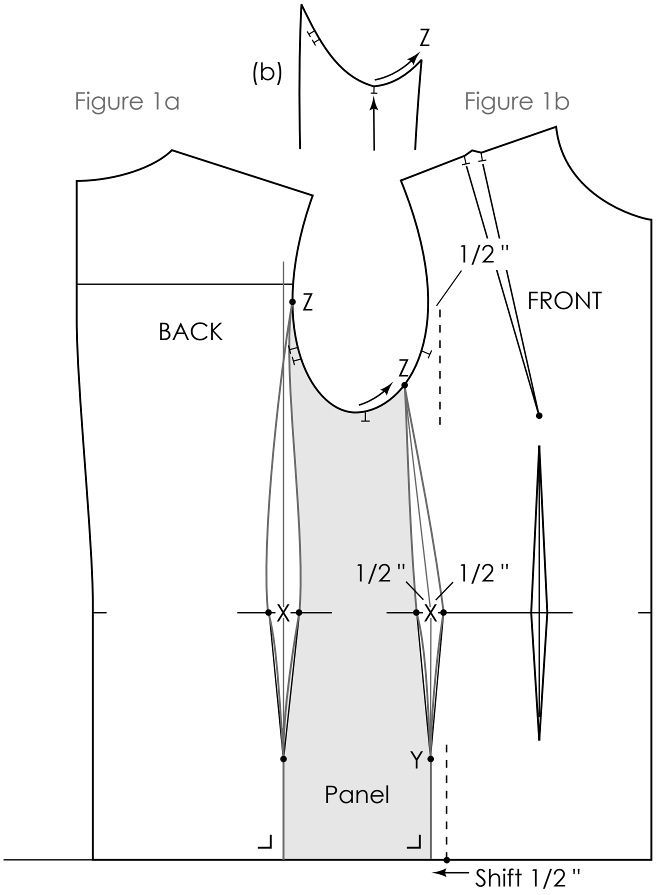
Repeat the square ruler placement on front jacket; then shift the ruler 1/2 inch as arrow indicates and draw line from hem to waist. Label X. Mark Y 5 inches down from X. Mark Z to equal the undersleeve seam up from notch.

Draw *outward* curved lines from X, blending at Y.

Draw *inward* curved lines from X to Z, blending at the armhole.

Figure 1a

Figure 1b

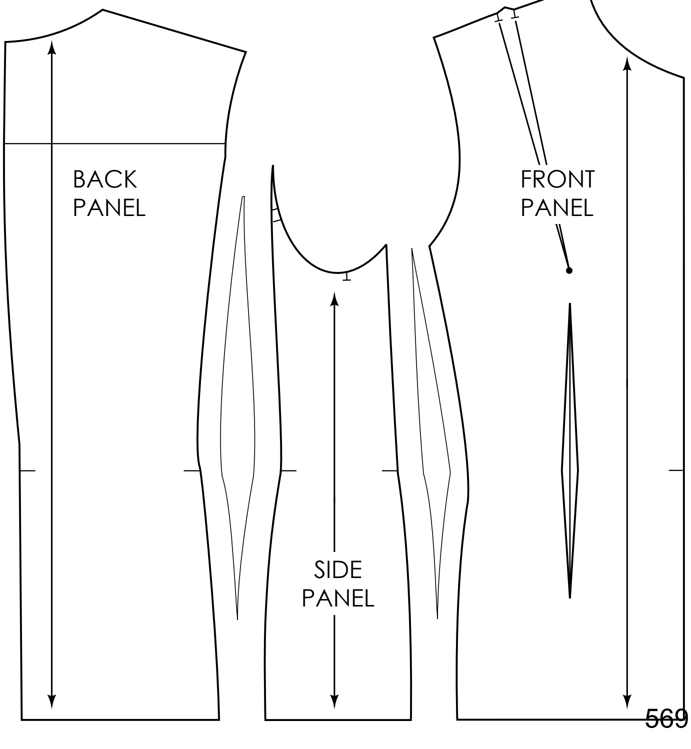


Finished Panel Patterns

Figure 2

- Cut panels from paper. Discard excess.
- Turn back three pages for collar/lapel draft.

Figure 2



EVALUATING THE FIT OF THE JACKET

The first fitting can be tested in muslin or in the design fabric with shoulder pads, interfacings and chest piece applied (not the lining). This is the time to adjust for a looser or tighter fit through the panel seams or any style seam. Check the sleeve alignment. A perfect sleeve should align at or slightly forward of the side seam. Does the sleeve hang to the back or too far forward, requiring the sleeve to be rotated? The hemline should be parallel with the floor. If the hemline is above or below the balance line, see below.

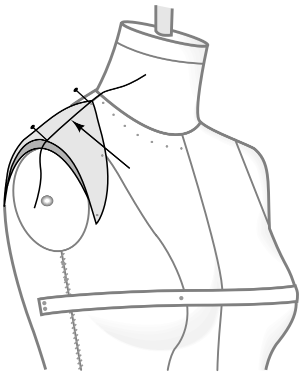
Adjusting the Pattern for a Shoulder Pad

Figures 1a, b, c

- Shoulder of the jacket (not lining) is adjusted. Follow Figure 1a to attach shoulder pads. Follow Figure 1b to adjust the shoulder. Check the hemline. Is it parallel to the floor? Adjust the patterns.

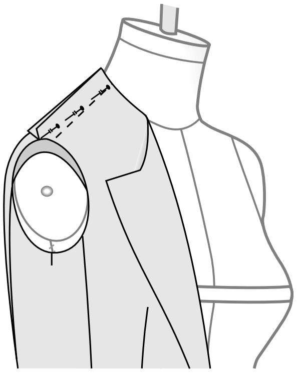
  Shoulder Pad. Add cap height by one of the two methods shown in Figure 1c.

Figure 1a



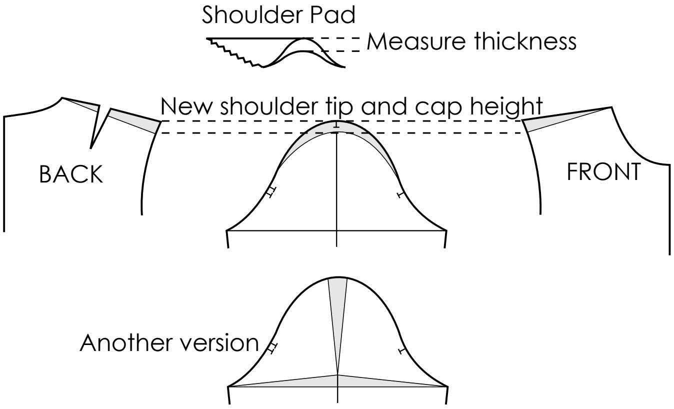
Mark shoulderline

Figure 1b



Adjusted shoulder

Figure 1c



Fitting Check Points

Figures 2a, b, c, d

- Rotate sleeve.
- Raise or lower F/B shoulders to balance the hemline (Figure 2b).
- Raise the shoulder or adjust the bust size. Figure 2c. Recut.
- Add to shoulder or adjust bust size. Figure 2d. Recut.

Figure 2a

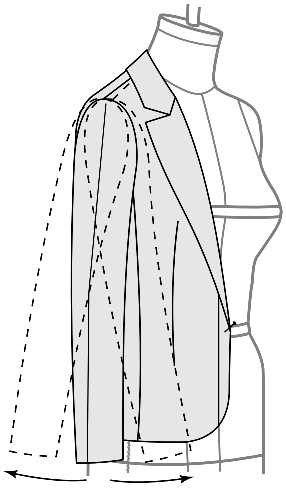
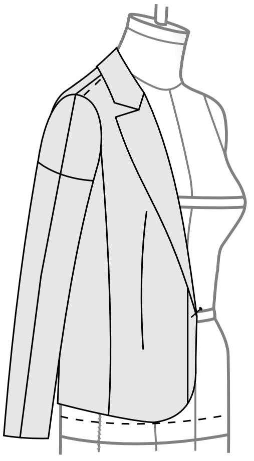
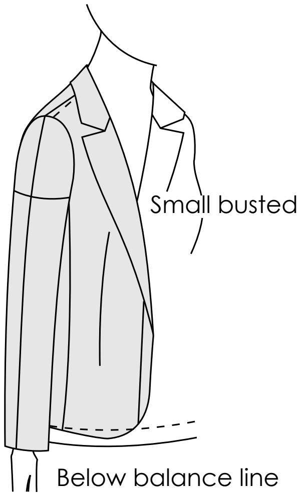


Figure 2b



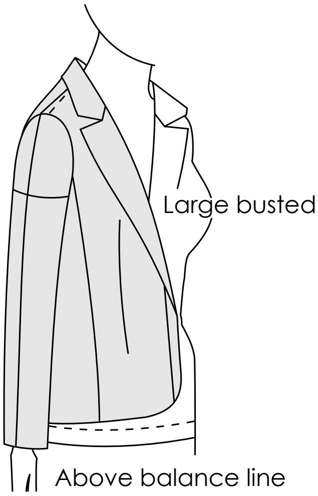
Insufficient room for shoulder pad

Figure 2c



Below balance line

Figure 2d



Above balance line

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

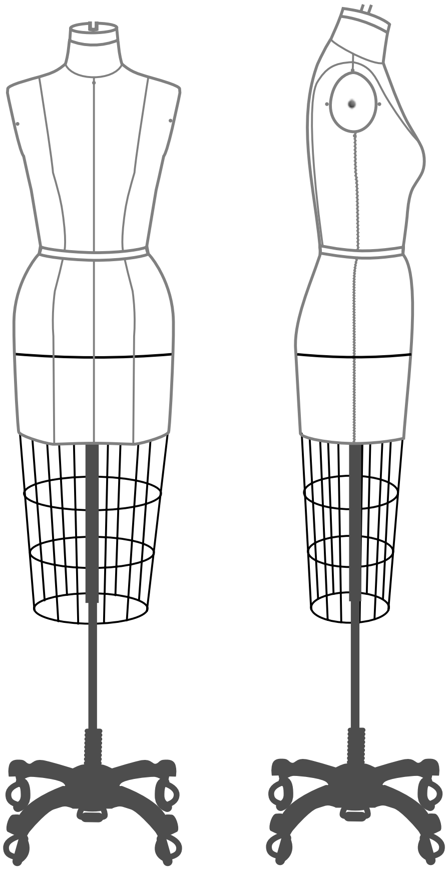
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____
2. Waist: _____
3. Abdomen: _____
4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
   B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
   Front = 1" (2 darts 1/2 to 5/8")
   Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

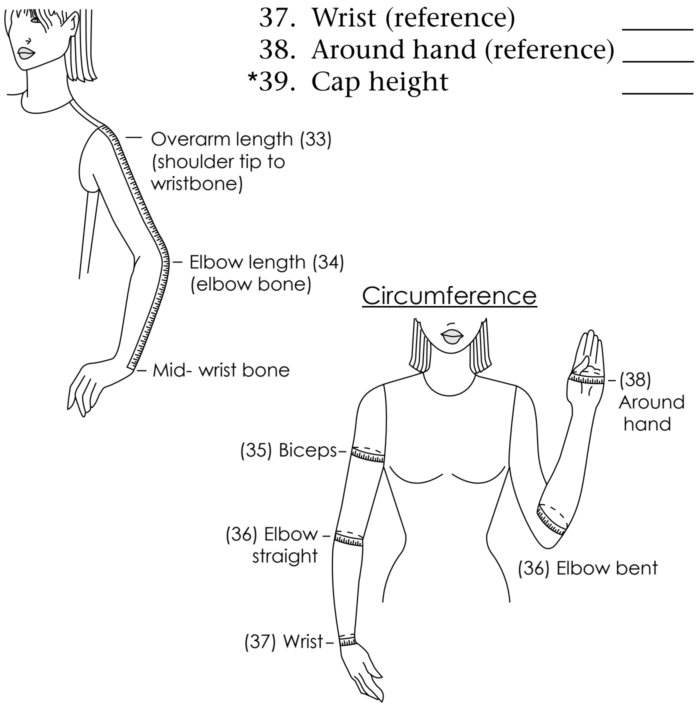
22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

Personal Figure Variations

A. Head height relationship:
   Bust _____ Waist _____
   Crotch _____ Knee _____
B. Bust/back/chest relationship:
   Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
   Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
   Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
   Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
   Front: _____ Back: _____
M. Bust/waist = _____
   Waist/hip = _____
   Bust/hip = _____
N. Other variations: _____

Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____

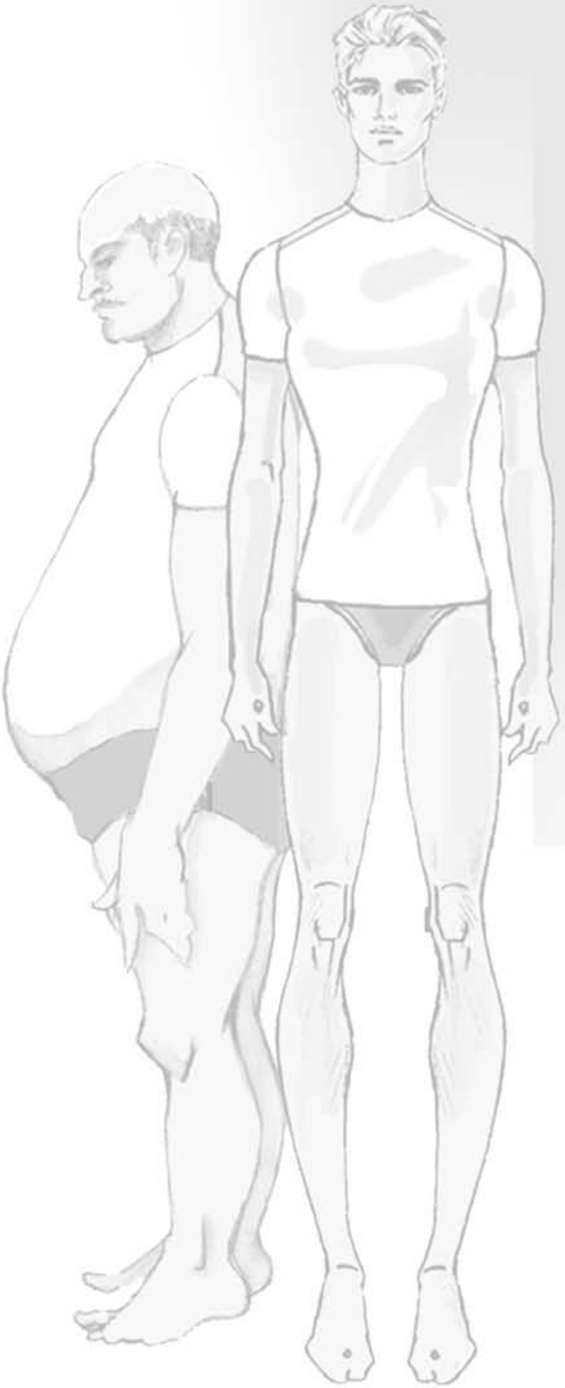

Length
Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone
Circumference
(35) Biceps
(36) Elbow straight
(37) Wrist
(38) Around hand
(36) Elbow bent

*Measuring the Arm

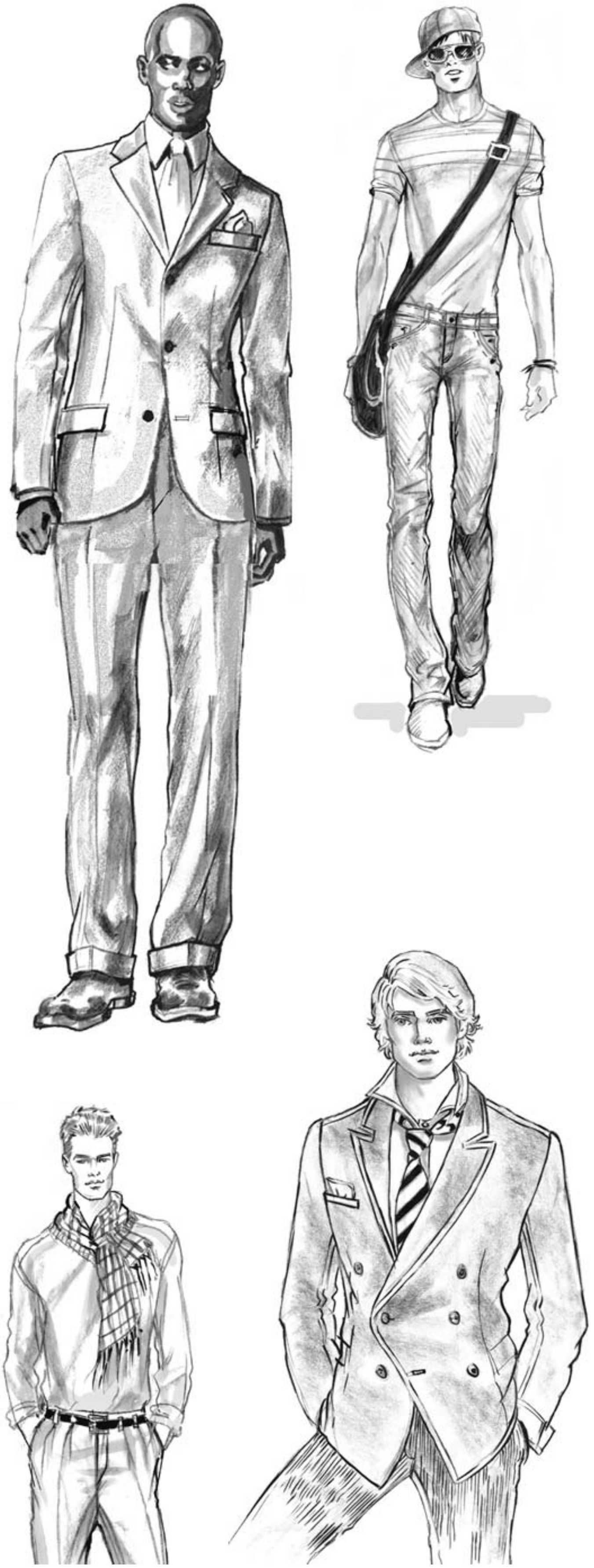
Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

Men’s Wear

INTRODUCTION TO MEN’S WEAR
    Draft Projects for Men’s Wear
    Forms and Their Characteristics
    Measuring for a Personal Draft
    Measurement Chart: Form and Personal Fit
YOUNG MEN’S MEASUREMENT CHART
MATURE MALE MEASUREMENT CHART
DRAFTING THE MEN’S JACKET FOUNDATION
    Jacket Sleeve Measurement Chart
    Basic Jacket Sleeve Draft
DESIGNING WITH THE JACKET FOUNDATION
    Collar and Lapel Classic Designs
    Color Codes
    Pattern Information
JACKET CONSTRUCTION
    Preparing Fabric
    Estimating Yardage
    Supplies Needed
    Applying Interfacing
    Assembling the Jacket
FITTING ANALYSIS AND CORRECTIONS
THE SHIRT FOUNDATION
    Shirt Sleeve Measurements
    Placket Design
THE CASUAL SHIRT
THE VEST
BASIC PANT FOUNDATION FOR TROUSER
    Trouser Draft
SLACK FOUNDATION
    Slack Draft
JEAN FOUNDATION
SPECIAL INFORMATION FOR ALL PANTS
    Pant Welt Pocket—Practice Welt



From Chapter 23 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.



INTRODUCTION TO MEN'S WEAR

Men's-wear fashions have evolved over the years, nudged on by consumers who wanted clothes less traditional and restrictive in what was proper dress. Designers were only too happy to oblige; newer fabric choices, brighter colors, silhouette changes, styleline variations, jackets with or without collar and lapels are but some of the innovations offered to satisfy consumers.

Yet the classic jacket, with the varied traditional collar and lapels, still prevails. But it was the wearer who decided how pants and jackets were to be fashionably worn. Sleeves of the classic tailored jacket were often pushed up and worn with denim pants, shorts, baggy oversized pants, and pencil-slims. Muscle knit tops or flashy shirts were worn with the traditional trouser. The hemlines were either dragging or rolled up. Tennies, boots, or bare feet completed the fashion wear for the day. Consumers did the mixing and designers made the "look" a fashion statement. What will be the next fashion direction for men's wear?

Assignment: Predict the fashion direction for men's jackets, shirts, and pants in two years. Sketch your designs and save to verify. Discuss your reasons.

Draft Projects for Men's Wear

The tailored jacket, vest, dress shirt, casual shirt, trouser, slack, and jean are illustrated.

The jacket is the first project; it is drafted as a one-piece foundation pattern. From this foundation, many panel designs can be created. The foundation can be adapted to the instructions for raglan, drop shoulders, kimono, and built-up necklines.

Two measurement charts follow: one for Young Men; another for the Mature Male. Instructions are given on where and how to measure a company's form, a personal form, and a model.

Forms and Their Characteristics

A consensus among measurement charts and grade allowances appears to be elusive, even though efforts are made to decide such standards.

The standard measurement charts characterizes the *average or regular* mature male to have a chest size of 40, and a young male to have a chest size of 38. The average height for the chest sizes is considered to be 5' 8". Heights do vary; a model may have a 40 or 42 chest and be 6' or taller; another model may be shorter than 5' 8". These differences affect the vertical measurements of the draft. Personal model measurements determine height, so adjustments do not apply.

The charts in this text are based on the New York Form Company's Mature Men and Young Men forms. The forms provide a clear distinction between model types and their measurements.

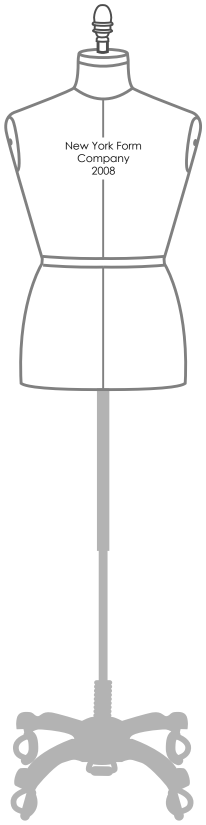
Instruction is given for taking measurements of a company's form, personalized forms, and a male model. Record measurements in the spaces provided on the following pages.

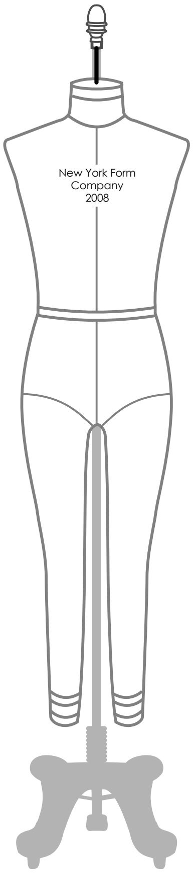
Mature Male (MM)

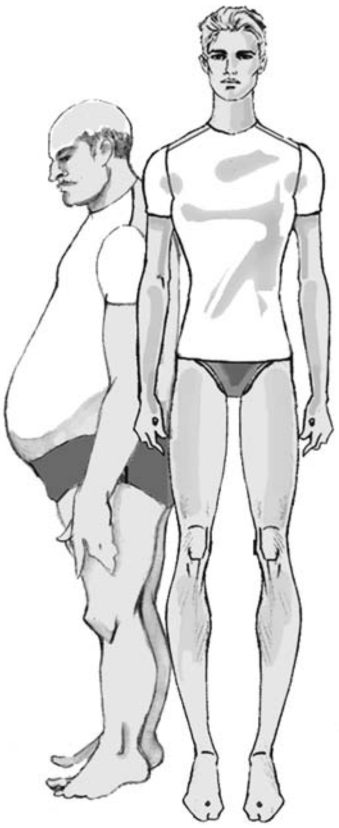
The marked size has a chest 2 inches greater; for example, size 40 has a chest of 42. The mature figure has a fuller chest and short waist.

Young Male (YM)

The marked size and chest measurement are the same; for example, size 40 has a chest of 40. The YM form has a longer waist and a slimmer or muscular body.







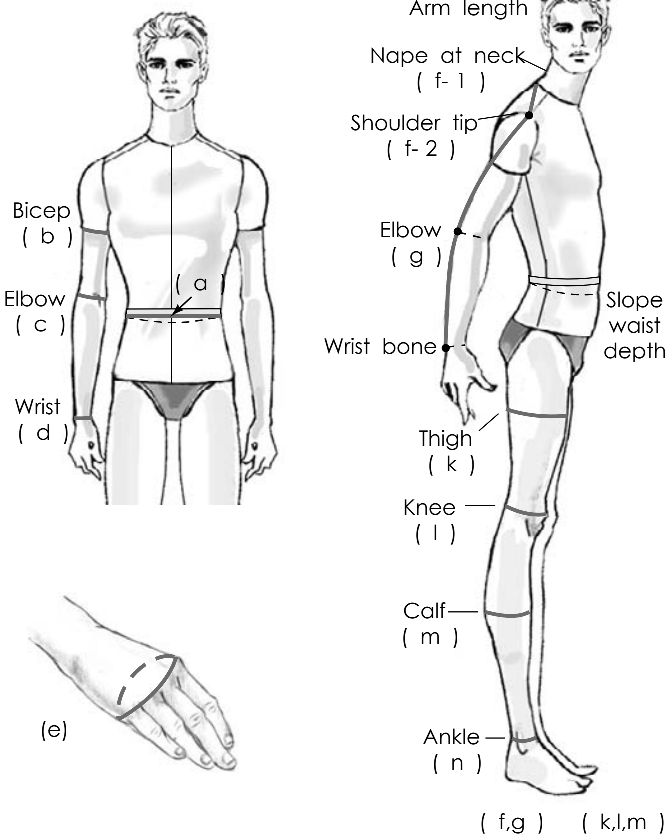
Measuring for a Personal Draft

Preparation: The model should wear a body suit, leotard, or a fitted knit top having shoulder seams and side seams, and following the neckline of the model. It will take another person to do the measuring. Do not try it alone. Mark front and back center lines with a sharp edge tailor's chalk or thread line. Align the garment to the centers of the front and back with the body.

Figures 1a through 1p

(a) Place a belt or elastic at C.B. waist, keeping it parallel with the floor, around to the C.F. Do not follow the waistline slope (broken lines) for the jacket draft, but measure and record the distance to the waist depth and to hip bone for pant draft. Pin mark or chalk mark bottom of belt or elastic. See the portly model on the next page.

Figure 1


Bicep
(b)
Elbow
(c)
Wrist
(d)
(a)
(e)
Arm length
Nape at neck
(f- 1)
Shoulder tip
(f- 2)
Elbow
(g)
Wrist bone
Slope waist depth
Thigh
(k)
Knee
(l)
Calf
(m)
Ankle
(n)
(f,g)
(k,l,m)

Personal Measurement Chart:

Arm measurements:

(b) Bicep (largest part of upper arm) _______

(c) Elbow _______ (d) Wrist _______

(e) Around hand/thumb under _______

Sleeve length:

Nape of neck to wrist _______ (f-1)

(f) Shoulder tip to wrist bone _______ (f-2)

(g) Shoulder tip to elbow _______

Leg measurements:

(h) Waist to floor _______ (i) to ankle _______

(j) to knee _______

Leg circumference:

(k) Thigh ______ (l) Knee ______ (m) Calf ______

(n) Ankle _______ (o) Around instep _______

Figure 2

Crotch depth: two methods illustrated.

(p) Outseam: measure from waist to floor _______

Measure from hip bone (see arrow) to floor _______

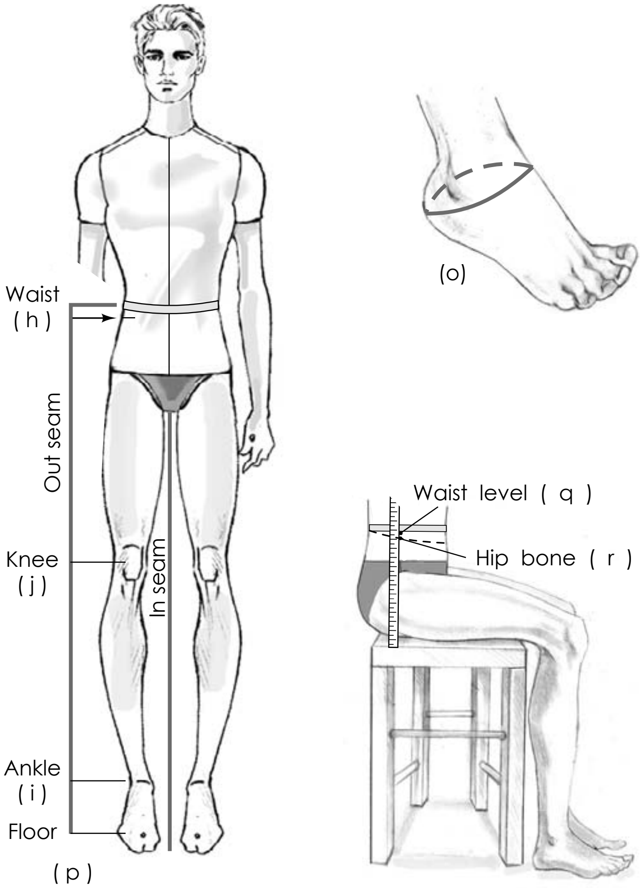
Inseam: measure from crotch level to floor. The difference is crotch depth. Record from waist _______, from hip bone _______ or

(q) sit on a flat surface. Measure from bottom of waist band to chair. Record _______

(r) measure from hip bone to chair. Record _______

Continue on next page, starting with number 1.

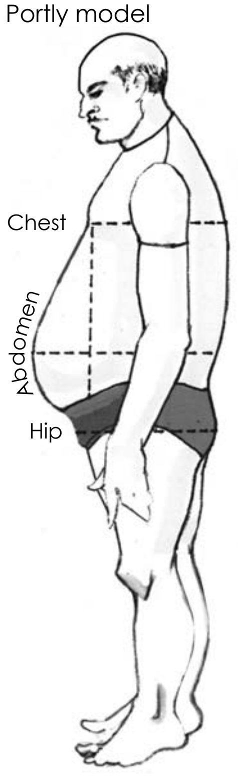
Figure 2


Waist
(h)
Out seam
Knee
(j)
In seam
Ankle
(i)
Floor
(p)
(o)
Waist level (q)
Hip bone (r)

Measurement Chart: Form and Personal Fit

Circumference Measurements

Figures 1a, b, c, d, e, f

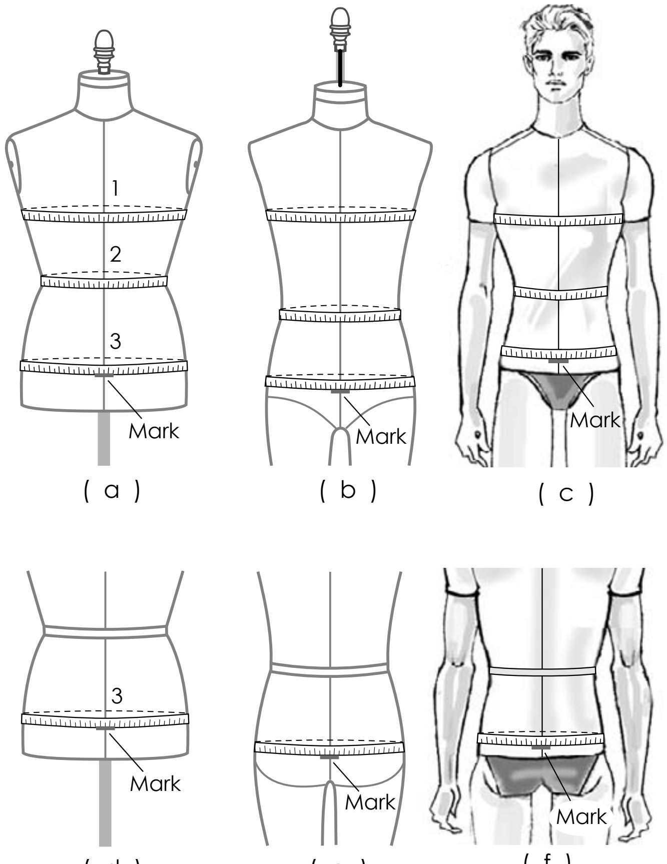


Portly models: Example of the portly model being belted for measuring the widest area around the abdominal/waist area. Record in space 2. Return to previous page to continue.

1. Chest, measure 2" below plate/arm pit _______
2. Waist _______ Waist depth
   Portly: Abdomen/Waist _______
3. Hip/Seat _______

Pin mark center front–a, b, c.
Pin mark center back–d, e, f.

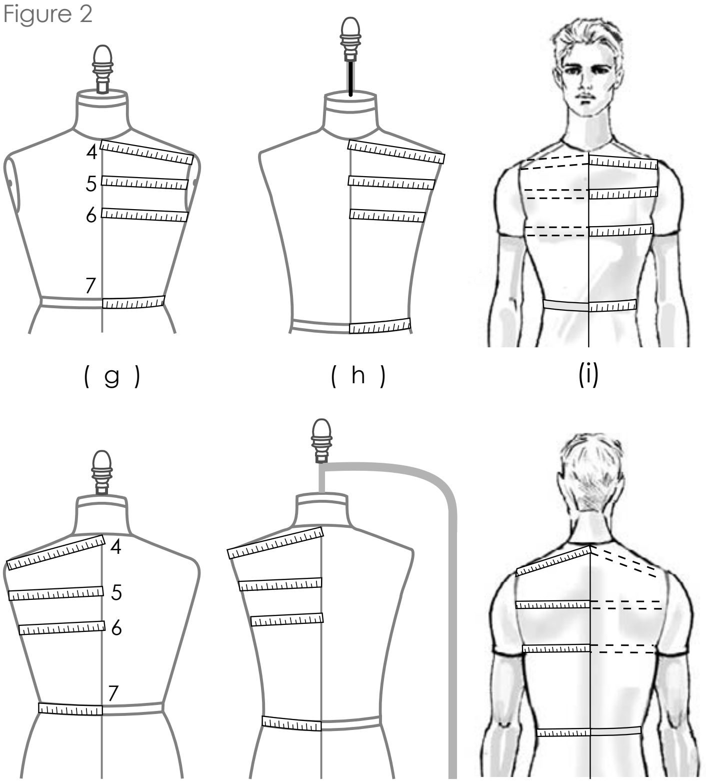
Figure 1



(a) (b) (c)

(d) (e) (f)

Figure 2



(g) (h) (i)

(j) (k) (l)

Horizontal Measurements

Personal fit: Measure across the front and back body. Divide in half and record.

Figures 2g, h, i, j, k, l

4. **Across shoulder:** F ______ B ______
   Center neck to shoulder tip.
5. **Across back:** B______
   Center line across shoulder blades (mid-armhole).
6. **Across chest:** F ______
   Center line to mid-armhole.
7. **Waist arc:** F ______ B ______
   Center to side seams.

Vertical Measurements

Figures 3m, n, o, p, q, r

8. **Center length:** F ______ B ______
   Neck to bottom of waist band.

   C.F waist depth (slope):
   Measure down from bottom of belt to waist depth mark.______
9. **Full length:** F ______ B ______
   Shoulder/neck parallel to center line, ending at bottom of waist band, or belt
10. **Shoulder slope:** F ______ B______
    Shoulder tip to bottom of waist band or belt.
11. **Center back waist to hip (seat)** ______
    Measure down from bottom of waist, band, or belt to hip line.

Figures 4s, t, u

12. **Shoulder length:** F/B ______
    Shoulder/neck to shoulder tip.
    Side length: Pin mark for reference ______ 1 1/4" below plate or arm pit.
13. **Crotch length**______
    Center front waist depth, under crotch to center back, or use the recorded chart measurements.

Figures 5v, w

14. **Neck circumference:** Measure 2" up from neck and divide by 5 plus 1/4".

Figure 5

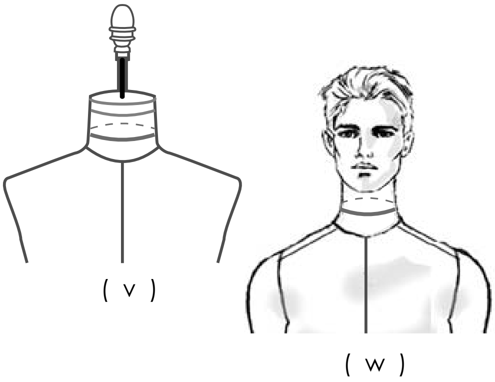


Figure 3

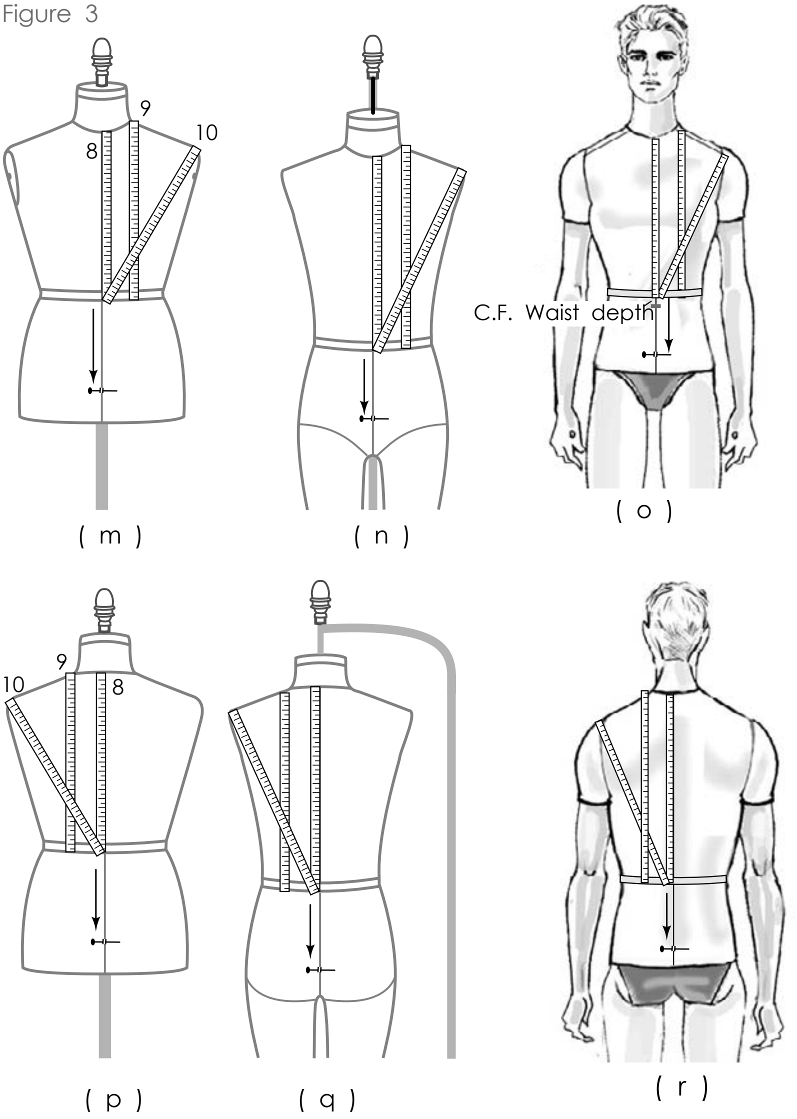
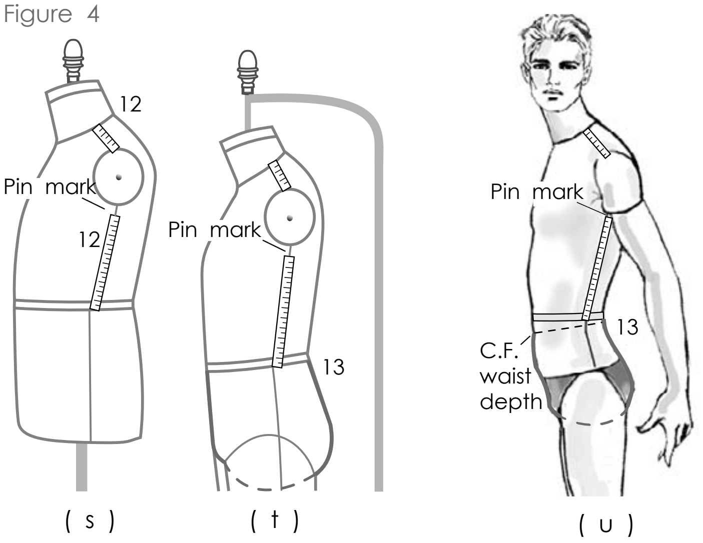

9
10
8
C.F. Waist depth
(m)
(n)
(o)
10
9
8
(p)
(q)
(r)

Figure 4


12
Pin mark
12
Pin mark
13
Pin mark
13
C.F. waist depth
(s)
(t)
(u)

Young Men's Measurement Chart

CIRCUMFERENCE

Measurements **Grade:** (Ease Not Included) **Size:**	**2"** **36**	**2"** **38**	**2"** **40**	**2"** **42**	**2"** **44**
1. Chest	36	38	40	42	44
2. Waist	29	31	33	35	37
3. Hip	36	38	40	42	44
4. Full length					
Back	$19\frac{5}{8}$	20	$20\frac{3}{8}$	$20\frac{3}{4}$	$21\frac{1}{8}$
Front	$19\frac{1}{8}$	$19\frac{1}{2}$	$19\frac{7}{8}$	$20\frac{1}{4}$	$20\frac{5}{8}$
5. Center length					
Back	$18\frac{1}{2}$	$18\frac{3}{4}$	19	$19\frac{1}{4}$	$19\frac{1}{2}$
Front	$16\frac{1}{2}$	$16\frac{3}{4}$	17	$17\frac{1}{4}$	$17\frac{1}{2}$
6. Across shoulder					
Back	$8\frac{1}{2}$	$8\frac{3}{4}$	9	$9\frac{1}{4}$	$9\frac{1}{2}$
Front	$8\frac{3}{8}$	$8\frac{5}{8}$	$8\frac{7}{8}$	$9\frac{1}{8}$	$9\frac{3}{8}$
7. Shoulder slope					
Back	$18\frac{9}{16}$	19	$19\frac{7}{16}$	$19\frac{7}{8}$	$20\frac{5}{16}$
Front	$19\frac{9}{16}$	20	$20\frac{7}{16}$	$20\frac{7}{8}$	$21\frac{5}{16}$
8. Across back	$7\frac{1}{2}$	$7\frac{3}{4}$	8	$8\frac{1}{4}$	$8\frac{1}{2}$
9. Across chest, front	$7\frac{3}{8}$	$7\frac{5}{8}$	$7\frac{7}{8}$	$8\frac{1}{8}$	$8\frac{3}{8}$
10. Shoulder length	$5\frac{7}{8}$	6	$6\frac{1}{8}$	$6\frac{1}{4}$	$6\frac{3}{8}$
12. Seat depth	$7\frac{3}{4}$	8	$8\frac{1}{4}$	$8\frac{1}{2}$	$8\frac{3}{4}$
13. Back neck	3	$3\frac{1}{8}$	$3\frac{1}{4}$	$3\frac{3}{8}$	$3\frac{1}{2}$
Leg Measurements					
14. Thigh	$21\frac{3}{4}$	23	$24\frac{1}{4}$	$25\frac{1}{2}$	$26\frac{3}{4}$
15. Knee	16	$16\frac{1}{2}$	17	$17\frac{1}{2}$	18
16. Calf	15	$15\frac{1}{2}$	16	$16\frac{1}{2}$	17
17. Ankle	10	$10\frac{1}{2}$	11	$11\frac{1}{2}$	12
Length Measurement					
18. Waist to Ankle	$36\frac{3}{4}$	37	$37\frac{1}{4}$	$37\frac{1}{2}$	$37\frac{3}{4}$
19. Waist to Knee	$22\frac{3}{4}$	23	$23\frac{1}{4}$	$23\frac{1}{2}$	$23\frac{3}{4}$
20. Waist to Floor	$39\frac{1}{2}$	$39\frac{3}{4}$	40	$40\frac{1}{4}$	$40\frac{1}{2}$
21. Trunk length	$65\frac{1}{2}$	$67\frac{1}{2}$	$69\frac{1}{2}$	$70\frac{7}{8}$	$72\frac{1}{4}$
22. Crotch length	23	$24\frac{1}{4}$	$25\frac{1}{4}$	$26\frac{1}{4}$	$27\frac{1}{4}$
23. Crotch depth (rise)	$9\frac{5}{8}$	10	$10\frac{3}{8}$	$10\frac{5}{8}$	$10\frac{7}{8}$

Mature Male Measurement Chart—Regular 5'8"

CIRCUMFERENCE Measurements	**Grade:**	**2"**	**2"**	**2"**	**2"**	**2"**
(Ease not included)	**Size:**	**36**	**38**	**40**	**42**	**44**
1. Chest		38	40	42	44	46
2. Waist		32	34	36	38	40
3. Hip		39	41	43	45	47
4. Full length						
Back		$17\frac{3}{8}$	$18\frac{3}{4}$	$18\frac{1}{8}$	$18\frac{1}{2}$	$18\frac{7}{8}$
Front		$16\frac{1}{4}$	$16\frac{5}{8}$	17	$17\frac{3}{8}$	$17\frac{3}{4}$
5. Center length						
Back		$16\frac{1}{2}$	$16\frac{3}{4}$	17	$17\frac{1}{4}$	$17\frac{1}{2}$
Front		$13\frac{7}{8}$	$14\frac{1}{8}$	$14\frac{3}{8}$	$14\frac{5}{8}$	$14\frac{7}{8}$
6. Across shoulder						
Back		$8\frac{5}{8}$	$8\frac{7}{8}$	$9\frac{1}{8}$	$9\frac{3}{8}$	$9\frac{5}{8}$
Front		$8\frac{1}{4}$	$8\frac{1}{2}$	$8\frac{3}{4}$	9	$9\frac{1}{4}$
7. Shoulder slope						
Back		$16\frac{3}{16}$	$16\frac{5}{8}$	$17\frac{1}{16}$	$17\frac{1}{2}$	$17\frac{15}{16}$
Front		$16\frac{15}{16}$	$17\frac{3}{8}$	$17\frac{13}{16}$	$18\frac{1}{4}$	$18\frac{11}{16}$
8. Across back		8	$8\frac{1}{4}$	$8\frac{1}{2}$	$8\frac{3}{4}$	9
9. Across chest, front		$7\frac{1}{2}$	$7\frac{3}{4}$	8	$8\frac{1}{4}$	$8\frac{1}{2}$
10. Shoulder length		6	$6\frac{1}{8}$	$6\frac{1}{4}$	$6\frac{3}{8}$	$6\frac{1}{2}$
11. Waist arc						
Back		8	$8\frac{1}{4}$	$8\frac{1}{2}$	$8\frac{3}{4}$	9
Front		$8\frac{1}{4}$	$8\frac{3}{4}$	9	$9\frac{1}{4}$	$9\frac{1}{2}$
12. Seat depth		$7\frac{1}{2}$	$7\frac{3}{4}$	8	$8\frac{1}{4}$	$8\frac{1}{2}$
13. Back neck		$2\frac{7}{8}$	3	$3\frac{1}{8}$	$3\frac{1}{4}$	$3\frac{3}{8}$
Leg Measurements						
14. Thigh		22	$23\frac{1}{4}$	$24\frac{1}{2}$	$25\frac{3}{4}$	27
15. Knee		15	$15\frac{1}{2}$	16	$16\frac{1}{2}$	17
16. Calf		14	$14\frac{1}{2}$	15	$15\frac{1}{2}$	16
Length Measurements						
17. Ankle		9	$9\frac{1}{2}$	10	$10\frac{1}{2}$	11
18. Waist to Ankle		$37\frac{1}{2}$	$37\frac{3}{4}$	38	$38\frac{1}{4}$	$38\frac{1}{2}$
19. Waist to Knee		23	$23\frac{1}{4}$	$23\frac{1}{2}$	$23\frac{3}{4}$	24
20. Waist to Floor		$39\frac{1}{2}$	$39\frac{3}{4}$	41	$41\frac{1}{4}$	$41\frac{1}{2}$
21. Trunk (total)		$61\frac{1}{2}$	$63\frac{1}{2}$	$65\frac{1}{2}$	$66\frac{7}{8}$	$68\frac{1}{4}$
22. Crotch length		$25\frac{3}{4}$	27	28	29	30
23. Crotch depth (Rise)		$9\frac{3}{4}$	$10\frac{1}{8}$	$10\frac{1}{2}$	$10\frac{3}{4}$	11

DRAFTING THE MEN'S JACKET FOUNDATION

The purpose of drafting a jacket foundation, which includes a tailored two-piece sleeve, is to have a base from which many jacket panel designs are created. The front and back are drafted together and are not separated for pattern work; they are *traced* for use. The foundation is a plain box silhouette, without stylelines, and with room enough for 1/2-inch shoulder pads. The amount of overall ease varies; 5 inches (closer fit) to 6 inches (loose fit). The armhole is marked with an X to identify the side seam. Armhole shapes differ and X may be shifted to the right or left to correct alignment (sleeve rotation). To test fit the foundation or the sample design, cut in a firm woven preshrunk muslin. Place a 1/2-inch shoulder pad on the shoulder and baste the interfacing to the garment. Correct the fit before use as a base for creating designs.

Measurements Needed:

Full length: F _______ B _______
Center Length: F _______ B _______
Across shoulder: F _______ B _______
Shoulder slope: F _______ B _______
Back neck: _______
Waist depth: _______

Across chest: _______
Across back: _______
Chest (half): _______
Abdominal/waist: _______
Shoulder length: _______
Seat: _______

General Guide to Using the MM and YM Measurement Charts Tall and Short Models

When there is conflict between chest size and the model's length measurements, replace the length measurements with those recorded.

Chest Measurements Between Whole Sizes

Example A: A chest 39 is between chest 38 and 40. Subtract differences, divide in half, and record for each measured area. There is one exception: Models over 6 feet use the *across back, across shoulder, and jacket length* for chest size 38.

Jacket Foundation Draft

Figure 1

Back:

A–B = **Full length** to waist. Label B.
A–C = **Across shoulder**, square from A and square guideline down from C.
B–D = **Center back length**. Square in 4".
B–E = **Shoulder slope**, mark and add 1/2" for shoulder pad.
A–F = **Back neck**, *Personal fit, see formula.*
F–G = **Shoulder length**, plus 1/2" touching E (holds 1/4" ease). Square down from F to D line.
B–H = One half of B–A less 1 1/4" for YM 1 3/4" for MM.
H–I = **Chest**, plus 3", for ease, squared from H. *Portly model: use abdominal/waist plus 3".*
B–J = H–I, Squared from B.
H–K = **Across back,** plus 3/8", mark and square up and down.
K–L = One-half from K to E.

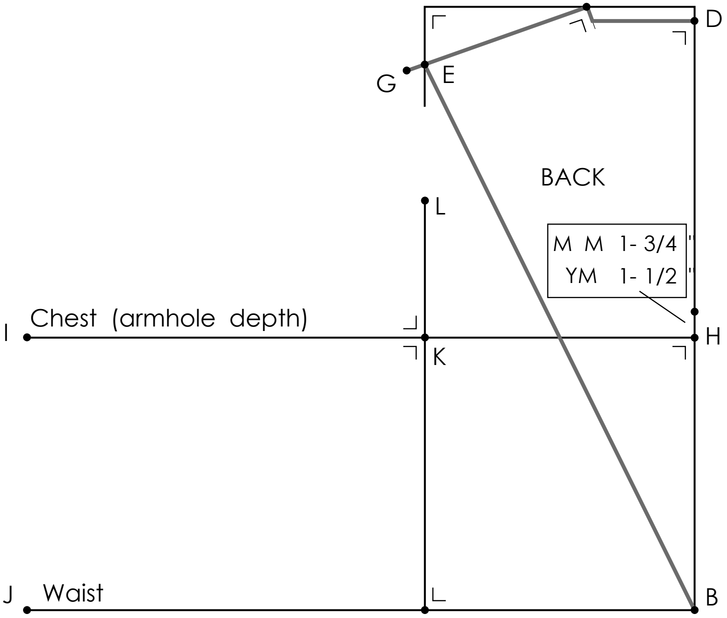


Figure 1

Figure 2

J–M = **Front full length:** square up from J to M.

M–N = **Across shoulder:** square from M and square guideline down from N.

M–O = A–F, plus 3/4" *(1" for mature and portly model)*

J–P = **Front length:** Mark and square out 4".

J–Q = **Shoulder slope**, plus 1/2".

O–R = **Shoulder length**, plus 1/4" touching Q. Square down from O to P line.

I–S = **Across chest**, plus 1/4". Mark. Square up and down from S to waist.

S–T = 1" less than K–L. Mark.

K–X = One-half of K–S, plus 5/8". Mark X. (X may shift if sleeve does not align.)

Figure 2

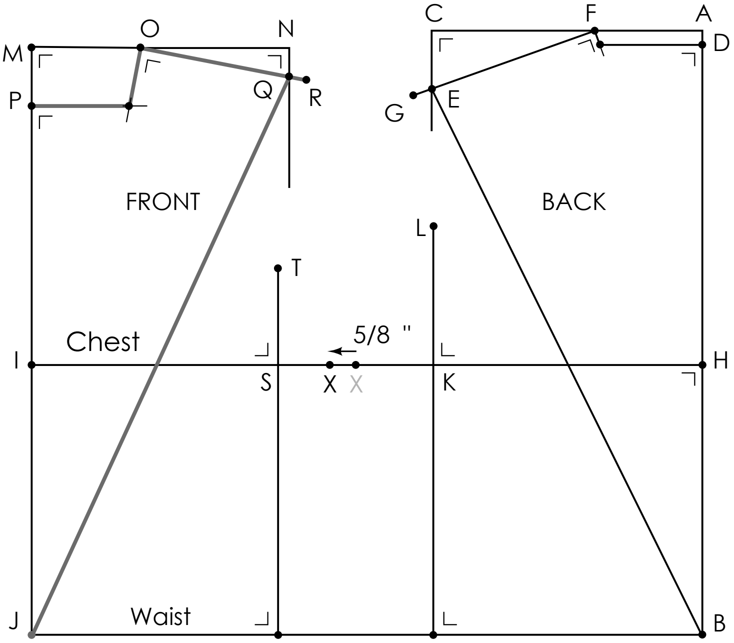

O
N
C
F
A
M
D
Q
R
P
G
E
FRONT
BACK
L
T
5/8 "
Chest
I
S
X
X
K
H
J
Waist
B

Figure 3

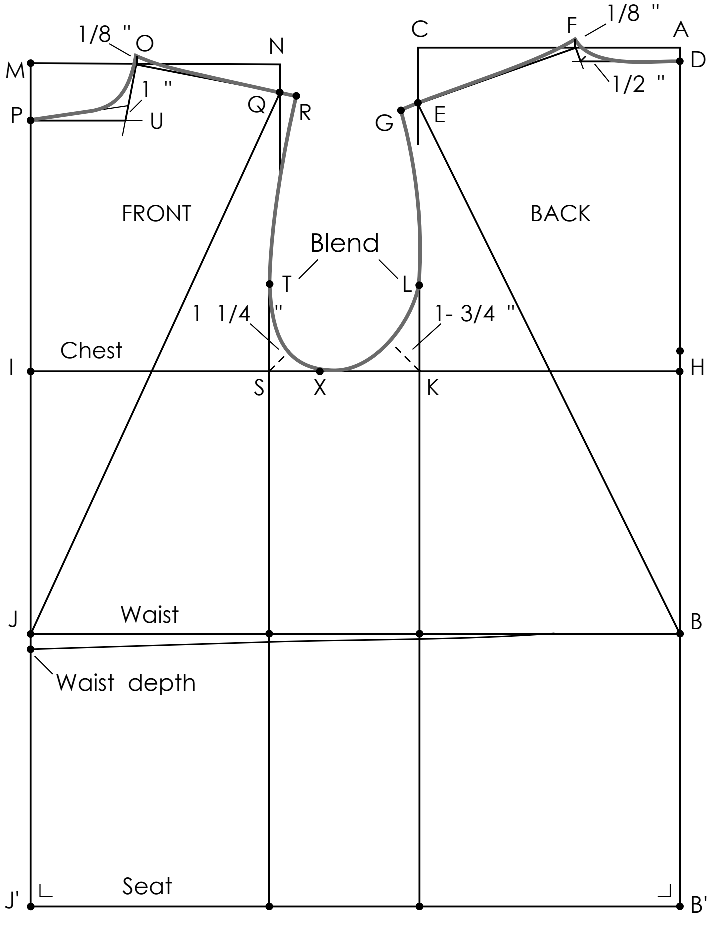
P–U = mark 1" up from U and connect to P.

- The neckline shape can be curved, or cornered for the collar draft.
- Draw front and back neckline, as illustrated.
- Extend 1/8" up at O and F, blending with neckline and curve lines to mid-shoulders.

Use sleigh rule, or French curve:

- *Front: Draw a 1 1/4" diagonal line from S.* Draw curve touching near X, angle mark, T and R. Measure armhole to X and record _____.
- *Back: Draw a 1 3/4" diagonal line from K.* Draw curve touching near X, angle mark to L. Reverse rule and draw curve from G, blending with L for a smooth curve. Measure armhole to X and record _____.
- **B–B' =** seat depth. Extend line down to B'.
- Square from B' to J' and up to J.
- Extend K and S lines to hemline.
- *Waist Depth: Measure from waist (J) to waist depth mark. Record _____ .*
- Draw line to mid-waist at back.

Figure 3

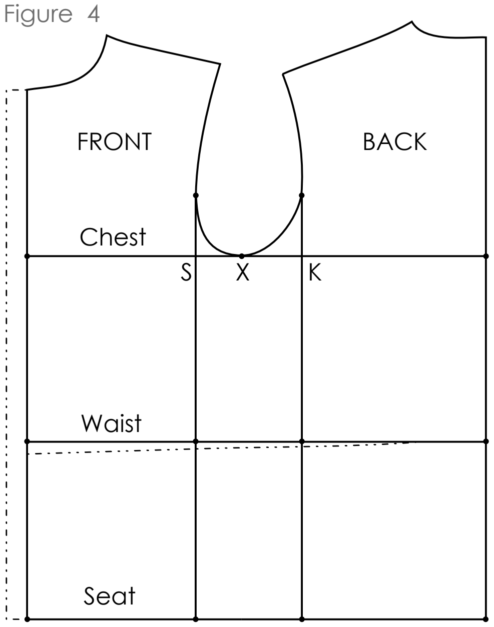

1/8 "
O
N
C
F
1/8 "
A
M
D
1 "
1/2 "
Q
R
P
U
G
E
FRONT
BACK
Blend
T
L
1 1/4 "
1- 3/4 "
Chest
I
H
S
X
K
J
Waist
B
Waist depth
Seat
J'
B'

Completed Jacket Foundation

Figure 4

Trace the foundation pattern; include chest, waist, S and K lines. The portly model's center line is shown as the broken line.

Figure 4



Jacket Sleeve Measurement Chart

Mature Male Sizes	36	38	40	42	44
Sleeve length	22½	23	23½	24	24½
Cap height	7	7-⅛	7-¼	7-⅜	7-½
Biceps	14-¾	15-½	16-¼	17	17-¾

Young Men Sizes	36	38	40	42	44
Sleeve length	23	23½	24	24½	25
Cap height	7	7⅛	7¼	7⅜	7½
Bicep	14¼	15	15¾	16½	17¼

Personal fit: Choose your chest size and cap height from the chart for biceps. For in-between chest measurements, divide and record the differences between the two chest sizes. Draft sleeve length from the recorded arm length or from personal measurements. Cap ease varies with fabric weight. An estimated amount of ease is between 1-1/4 and 1-1/2 inches. Test fit for hang of the sleeve and smoothness of the cap.

Basic Jacket Sleeve Draft

Figure 1

A–B = Sleeve length. Add 1/2" and draw line to wrist.

A–C = Cap height. Mark on A–B line. Personal fit: Use recorded measurement.

B–D = Half B–C plus 1". Label D' and square from all marks.

A–E = One-half of biceps measurement. Personal fit: Use recorded biceps.

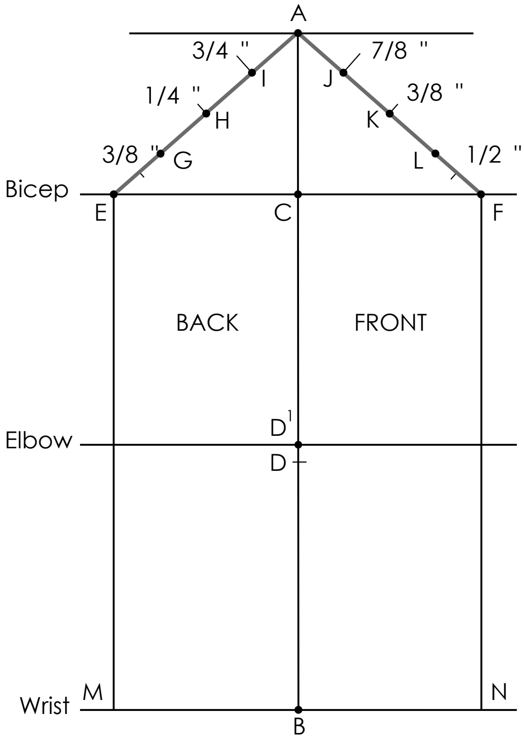
A–F = A–E

B–M = C–E

B–N = C–F

Connect M and N to E–F.

Figure 1



Square lines from the following letters:s

I — Out 3/4"
H — Out 1/4"
Between G–E, in 3/8"

J — 7/8"
K — 3/8"
L — Between N–F in 1/2"

Shaping Cap

Use French curve, or sleigh rule.

Figures 2a, b

Touch A, J, K and draw line past K.

Touch F, L and blend with K line (a).

Touch A, I, H and draw line past H.

Touch E–G and blend with H line (b).

Back—two notches: one at G and 1/2" above

Front—one notch at L. See Figure 3.

Walk sleeve from X to shoulder tips, marking notches. Mark where shoulder tips end on the sleeve cap. The distance between the marks is cap ease. Notch center between the marks. *Acceptable cap ease is from 1-3/8" to 1-3/4"*. Save the foundation for sleeve designs.

Figure 2a

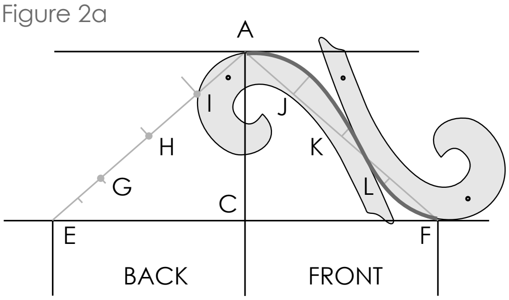
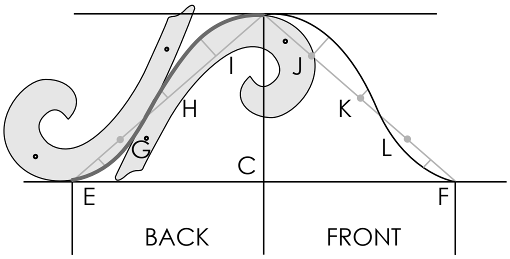


Figure 2b



Two-Piece Tailored Sleeve

Figure 3

Trace the sleeve foundation. The upper and undersleeve are drafted together and then separated at the end of the draft.

Divide the bicep line into four equal parts and draw lines. Label grain line A and divide panel into thirds.

A to X = Two-thirds from A. Dot mark.

Figures 4a, b

Fold biceps to X. Crease and square a line when 1" touches curve of the sleeve cap. Mark and label Z and Y. Trace across. Draw curve from X to Y and X to Z. Unfold pattern (a).

Undersleeve: Square lines from Z and Y to hem, and from Z' to bicep line.

Mark 3/8" at biceps and draw curve line from Y to hem and from Z, ending 1/2" in from grainline, extending 3/8" below wrist (b).

Figure 3

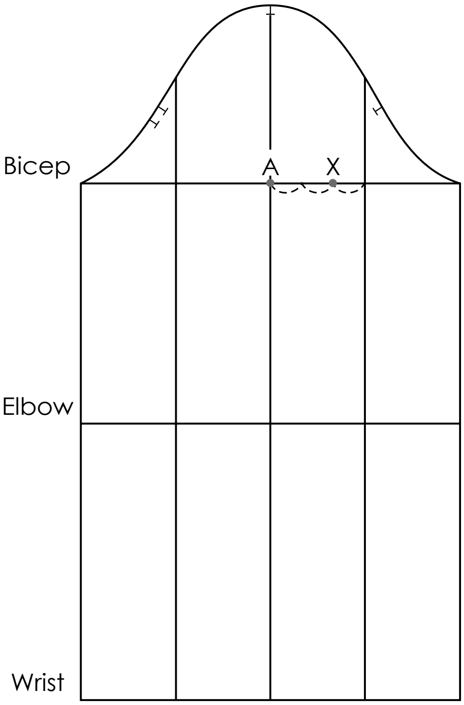


Figure 4a

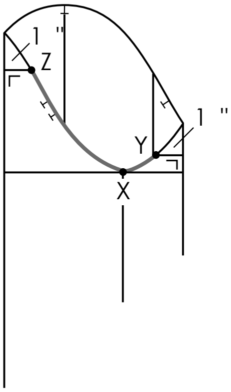
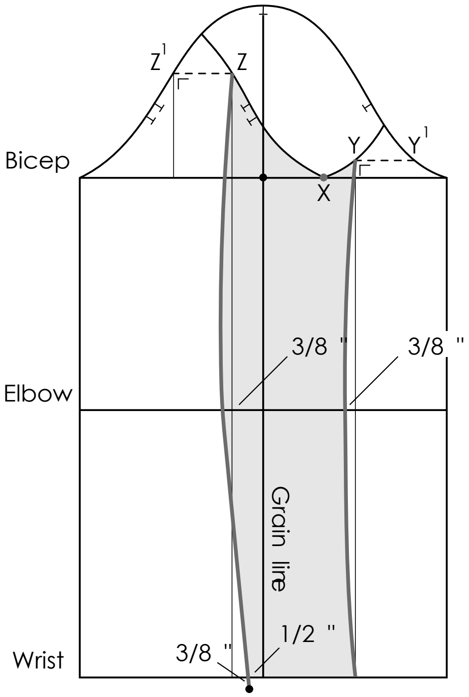


Figure 4b

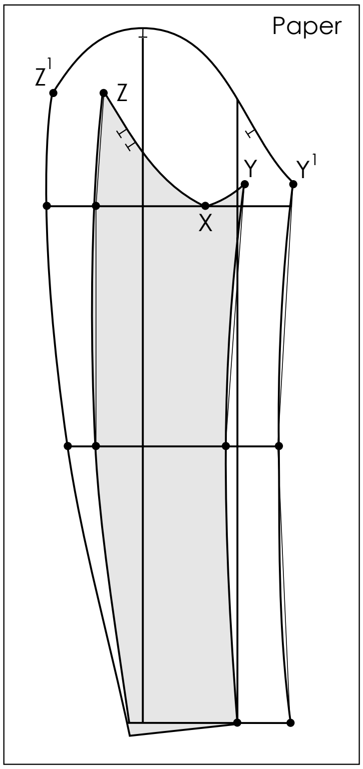


Uppersleeve

Figure 5

- Y', draw a 2" wide parallel line from Y to hem.
- Z', draw curve line, passing 1" out from elbow, ending 3/8" below hem. Draw line to wrist of under panel.
- Cut upper sleeve from paper.

Figure 6


Paper
Z^1
Z
Y
Y^1
X

Figures 7a, b

- To give additional elbow bend in the sleeve, slash at elbow level of upper and under sleeve.
- Spread the desired bend.

Test Fit Option

Test half a garment to fit the form, or a total jacket to fit on a model. Stitch sleeve to the jacket foundation before beginning the design project. Trace patterns on a firm preshrunk fabric, and add 1/2-inch seams on the fabric. Pin shoulder pad to the form and baste the chest piece to the jacket foundation. Place on a form or model to evauate fit of the sleeve.

Figure 5

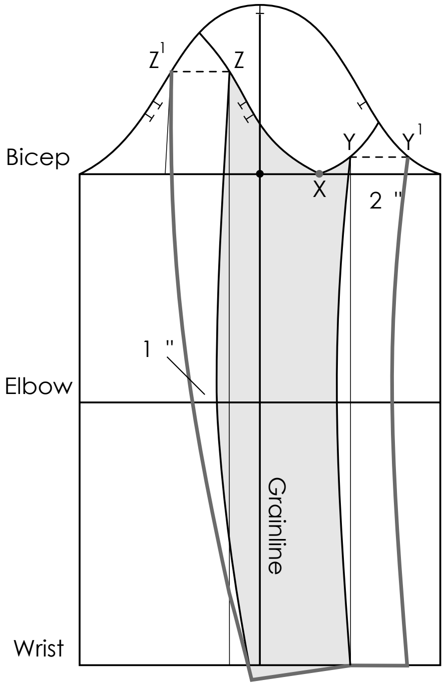
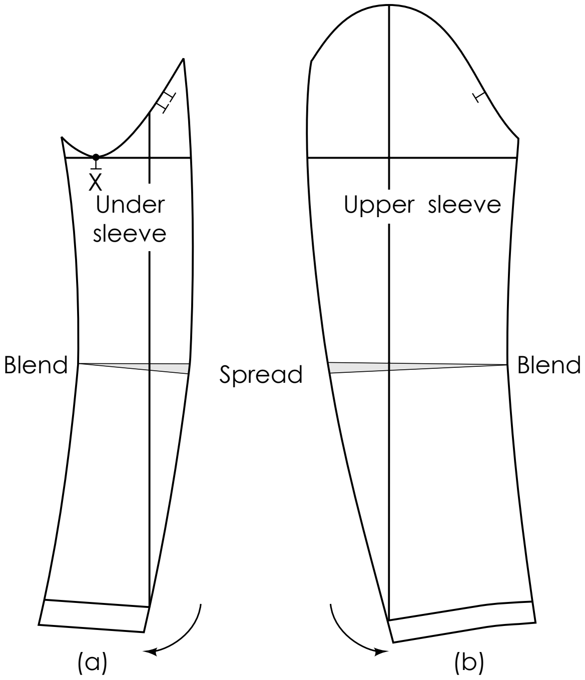

Z^1
Z
Y
Y^1
Bicep
X
2 "
1 "
Elbow
Grainline
Wrist

Figure 6

- Place paper under the sleeve pattern and trace the under sleeve.
- Remove paper and cut the pattern from paper. Cut paper away from the upper sleeve.
- Walk seams and blend wrist level.

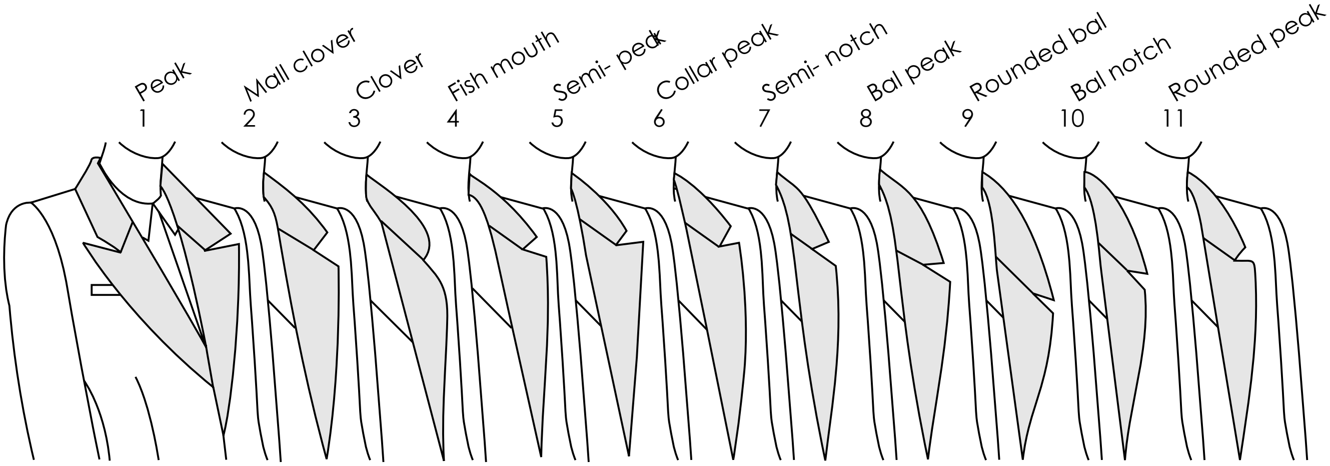
Figure 7

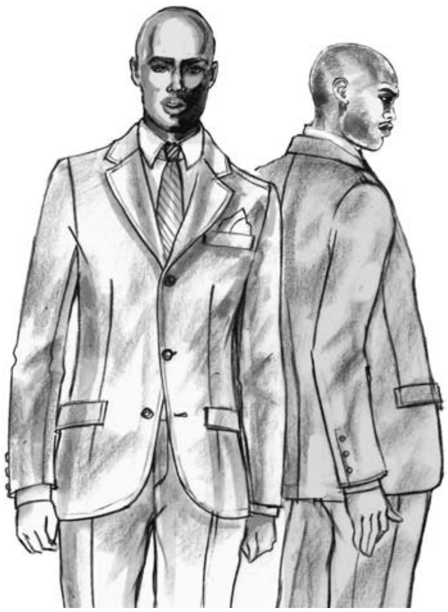

X
Under sleeve
Upper sleeve
Blend
Spread
Blend
(a)
(b)

DESIGNING WITH THE JACKET FOUNDATION

Collar and Lapel Classic Designs

The classic collar and lapels have their own individual names and characteristics. Select the style that will complement the design of your jacket or coat. The collar and lapel should be selected before beginning the draft of a jacket or coat. The jacket was designed with the semi-notch collar.


Peak
1
Mall clover
2
Clover
3
Fish mouth
4
Semi- peak
5
Collar peak
6
Semi- notch
7
Bal peak
8
Rounded bal
9
Bal notch
10
Rounded peak
11



Design Analysis

The three-button-style jacket has a semi-notch collar, a welt, and two flap pockets.

Portly model: Follow the instruction and also special notations. The final draft may look different.

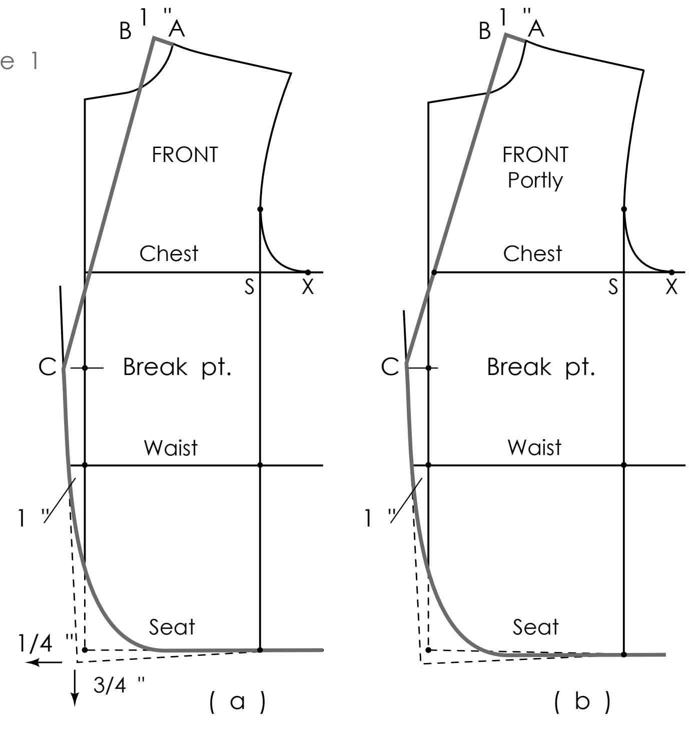
Trace the Foundation Jacket

Include chest, waist, seat, and S and K lines. Mark X.

Figures 1a, b

- Mark the following: Extend waist 1" (a), (b).
- Mark break point C between chest and waist.
- Lower hem 3/4" and out 1/4" (broken lines) and draw line to C.
- Continue the hem curve, blending beyond S line to hem.
- A-B = 1" and draw line to C.

Figure 1


B
1"
A
FRONT
Chest
S
X
C
Break pt.
Waist
1"
Seat
1/4"
3/4"
(a)
B
1"
A
FRONT
Portly
Chest
S
X
C
Break pt.
Waist
1"
Seat
(b)

Collar/Lapel

Figure 2

A–D = Mark 1/4". Draw line from neck curve to D. Extend line equal to back neck, plus 1/8". Mark E.

F–G = 2 1/4" Continue line from F.

C = Draw a straight and then a curved line.

Figures 3a, b

E–H = 1/2" and draw a line from D to H equal to D–E. Square from H–D 2 3/4" to I. Square a short line from H–I. (a)

Mark 3/4" from F. Draw collar, as shown. (b)

Figure 2

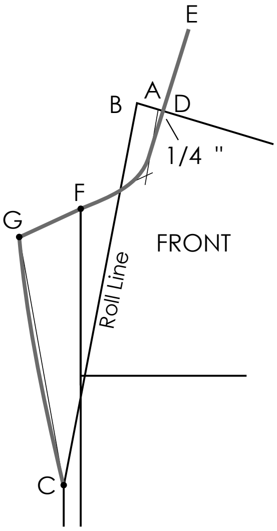

E
B
A
D
1/4 "
F
G
FRONT
Roll Line
C

Figure 3a

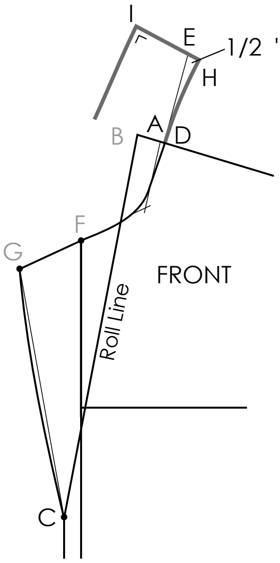
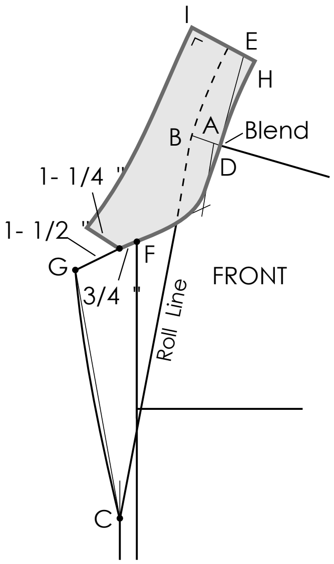

I
E
1/2 "
H
A
B
D
F
G
FRONT
Roll Line
C

Figure 3b


I
E
H
A
B
Blend
D
1- 1/4 "
1- 1/2 "
G
F
3/4 "
FRONT
Roll Line
C

Styling the Jacket

Figure 4

Three panels are created: front, side, and back.

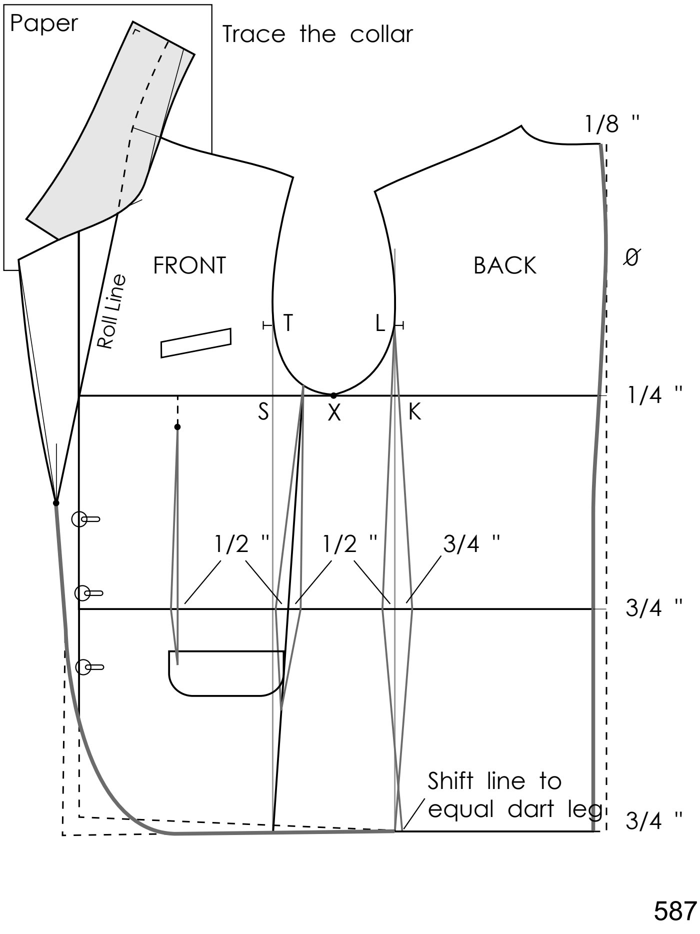
Front panel: Centered between S–X. Draw line, ending at hem on S line. Mark 4" below waist. Mark 1/2" on each panel and draw connecting lines.

Long dart: Centered between S and center front ending 3" below waist.

Back panel: Begins on L line and crosses at seat to equalize dart legs (style panel). Mark 1/2" and 3/4". Connect panel lines.

Shape center back, as shown. Mark placements for 3 buttons, pocket flap, and chest welt pocket.

Figure 4


Paper
Trace the collar
1/8 "
FRONT
BACK
Ø
Roll Line
T
L
S
X
K
1/4 "
1/2 "
1/2 "
3/4 "
3/4 "
Shift line to
equal dart leg
3/4 "

Completing the Collar

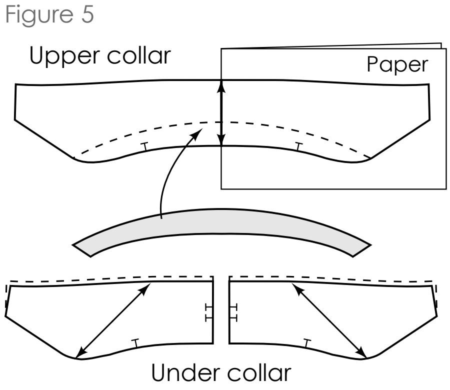


Figure 5
Upper collar
Paper
Under collar

Figure 5

- *Uppercollar:* Trace collar on fold. Mark 1" for roll line (see broken lines).
- *Roll line:* Trace a copy of the roll line pattern. Cut in fusible interfacing, or top-stitch Belgium linen to the collar.
- *Undercollar:* Trace the uppercollar to center back. Trim 1/8" on top edge. Make two copies. Draw grainline on bias.

Separating Jacket Style Lines

Figure 6

Separate stylelines from the jacket pattern. The style panels, sleeve, and collar will be the base for tracing all interfacings and lining. The shaded areas indicate traced copies of the interfacings (can be traced to stitch line, extended 1/8 inch beyond, or to the cut line). The facing part of the front pattern is traced to the blue line.

A notch is marked on the front jacket and a notch 1/2 inch up from the bottom of the facing. Draw and trace a facing tip for extra support. The jacket front and facings are completely interfaced. See Pocket Flap and Welt section later in this chapter for flap and welt pocket constructions.

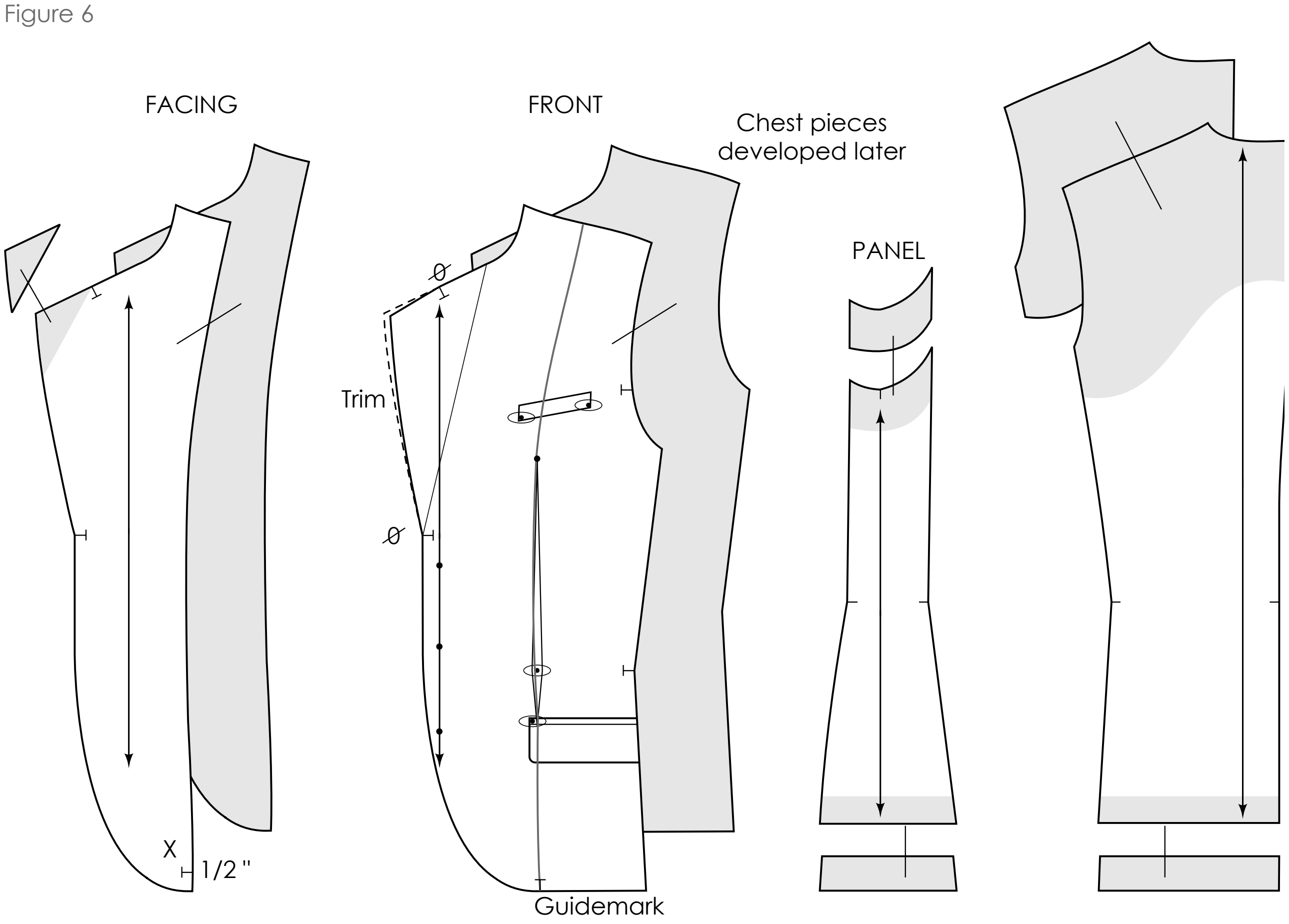


Figure 6
FACING
FRONT
Chest pieces
developed later
PANEL
Trim
0
0
X
1/2 "
Guidemark

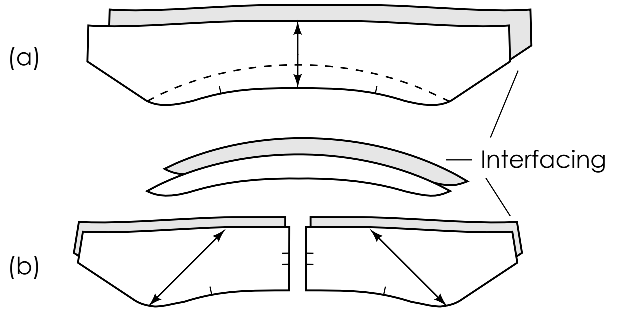
Interfacing for Collar and Sleeve

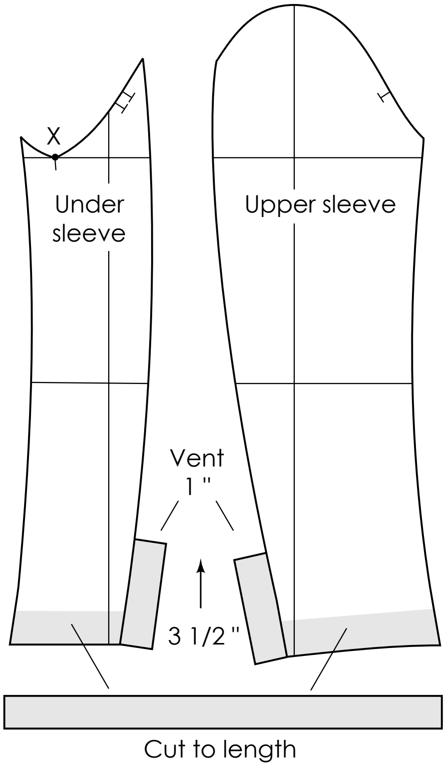
Figure 7a, b, c

Collar pattern: Support is added by cutting a fusible interfacing, which is placed on the uppercollar, undercollar, or both (shaded areas) (a). The crescent shape may be cut in fusible hymo (b).

Two-piece sleeve: Cut a 1" wide strip of fusible interfacing for vent and hem (c).

Figure 7


(a)
Interfacing
(b)


X
Under sleeve
Upper sleeve
Vent
1 "
3 1/2 "
Cut to length

(c)

Lining Patterns

Figures 8a, b

Trace the jacket patterns. Draw front lining following the dart leg (absorbs dart in the princess seam). Extend hemlines 1/2"; notch 1" for fold of hem. Trim shoulder tips to mid-shoulders to eliminate allowance for shoulder pads (slash lines). Add 1/8" to seams, extend underarms 1/2", trim sleeve cap. Add 1" at center back for stress-release pleat.

Figure 8a

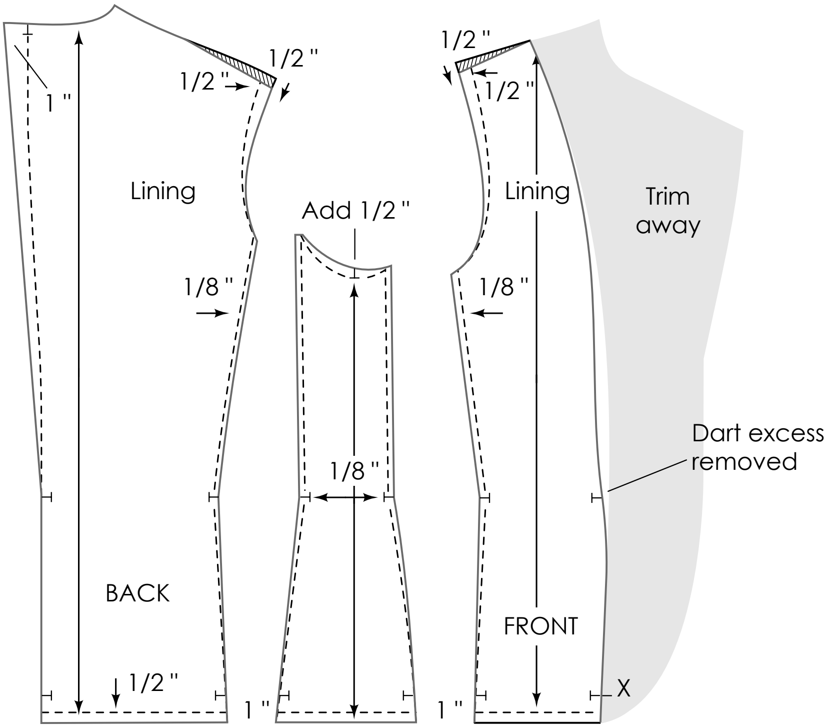
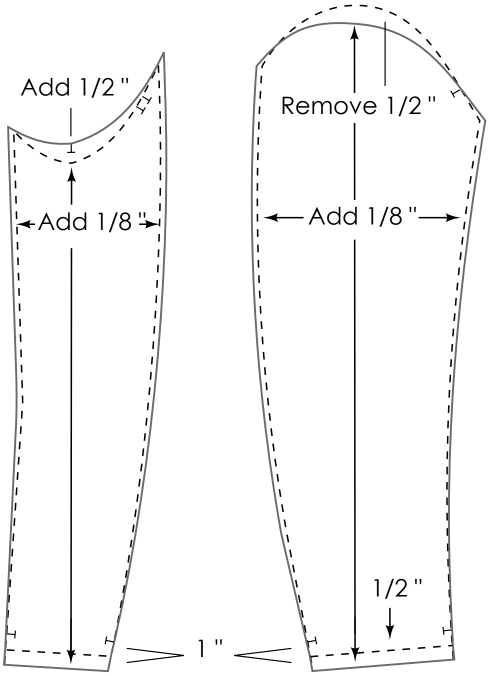

1 "
1/2 "
1/2 "
Lining
1/8 "
BACK
1/2 "
1 "
Add 1/2 "
1/8 "
1 "
1/2 "
1/2 "
Lining
1/8 "
FRONT
X
Trim away
Dart excess removed

Figure 8b

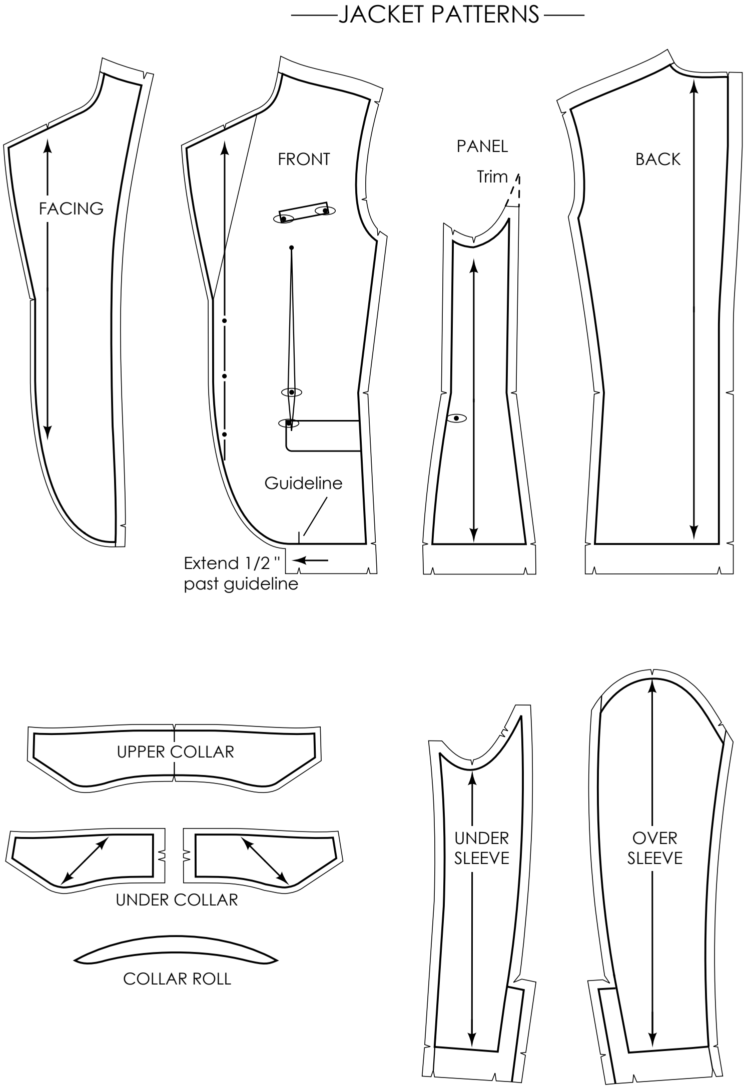

Add 1/2 "
Add 1/8 "
1 "
Remove 1/2 "
Add 1/8 "
1/2 "

Jacket and Lining Seam Allowance

Figure 9

- *Necklines/collars/facings* = 1/4".
- *Shoulder lines* (jacket and facing) = 3/4" (allowance for fitting adjustment).
- *Other seams:* = 1/2". Option: Tailor seams 3/8".
- *Hemlines:* = 1 1/2" (hem ends 1/2" past guideline) on the jacket patterns

Figure 9


JACKET PATTERNS
FACING
FRONT
PANEL
Trim
BACK
Guideline
Extend 1/2" past guideline
UPPER COLLAR
UNDER COLLAR
COLLAR ROLL
UNDER SLEEVE
OVER SLEEVE

Color Codes

Color-coded patterns group fabrics of the garment. Industry choices may differ from list given:

- *Jacket*: black
- *Lining*: blue
- *Interfacing:* red—if more than one type, code each with a different color
- *Interlining:* green

Pattern Information

- *Label:* Each pattern requires a style number, size, number of pieces cut, and identification. Draw grainlines.

Flap and Welt Pockets

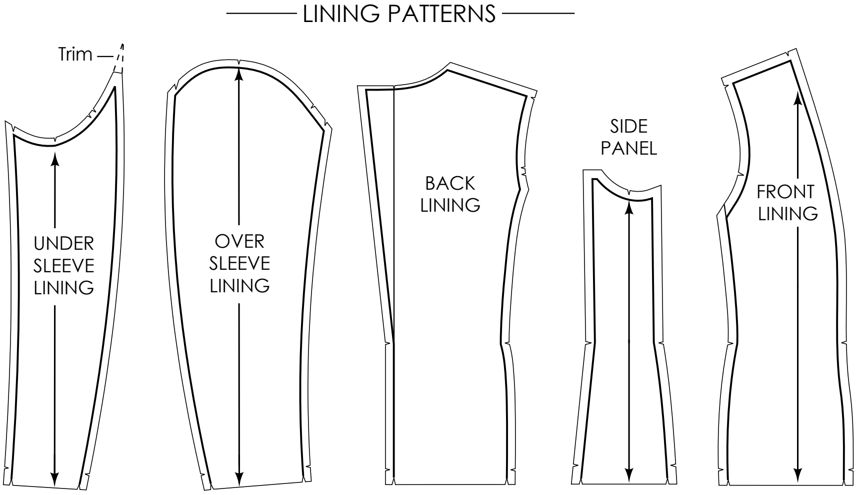
For instruction for making the flap and welt patterns, including a sewing guide, see Pocket Flap and Welt section later in this chapter.

Lining Patterns

Figure 10

- Add 1/2" to all seams, except at hemlines.

Figure 10


LINING PATTERNS
Trim
UNDER SLEEVE LINING
OVER SLEEVE LINING
BACK LINING
SIDE PANEL
FRONT LINING

JACKET CONSTRUCTION

Jackets or coats designed with stylelines and pockets that differ from the illustration should apply sewing instructions to those styles. The instruction is slanted toward industry methods. There are a number of methods for constructing a jacket and a number of ways that interfacing and interlining can be used. Space allows for only a few alternative methods.

Preparing Fabric

Preshrink fabrics associated with the jacket before cutting. All woven and knitted fabrics shrink, but some fabrics shrink to a greater degree than others. The best method for shrinking is to soak fabrics in water overnight (in a tub or washer). Allow the fabric to drip dry, or roll it in a towel rather than twisting to shed water. Align the grains afterward. (Steam pressing with an iron causes uneven shrinkage and should be avoided.) Manufacturers often order fabrics preshrunk "sponged" prior to delivery.

Estimating Yardage

Based on 45-inch fabric, use the general rule "2-times-length," plus one-quarter yard or lay the coded patterns in separate fabric groups (design fabric, lining, and interfacing). Lay the larger patterns first and smaller patterns in leftover spaces for a better estimate.

Supplies Needed

- Purchase the fabric and threads to match.
- Interfacing: fusible or nonfusible, woven or nonwoven.
- Chest piece: fusible interfacing, Belgium linen, horsehair, other firm woven fabrics or a combination of two of those listed when layering the chest pieces; see next page.
- Twill or fusible tape (stabilize the garment edges and for the bridle)
- Shoulder pads and sleeve headers (available in a variety of shapes)

To find supplies and materials, shop the fabric stores and manufacturers' supply companies. The Internet may list other sources in your area for supplies and material needed to construct a jacket.

Komar
6900 Washington Blvd.
Montebello, CA 90640
1-800-872-7397

Security Textile//QST
1457 East Washington Blvd.
Los Angeles, CA 90021
213-747-2673

Gubi Linings and Trimmings Company
61 Delancey Street
New York, NY 10002
212-226-3532

Sew and Show
401 North Avenue
Garwood, NJ 07027
908-789-2115

Vecharelli Industry Supplies
121 West 15th Street
Los Angeles, CA 90015
213-749-2038

Applying Interfacing

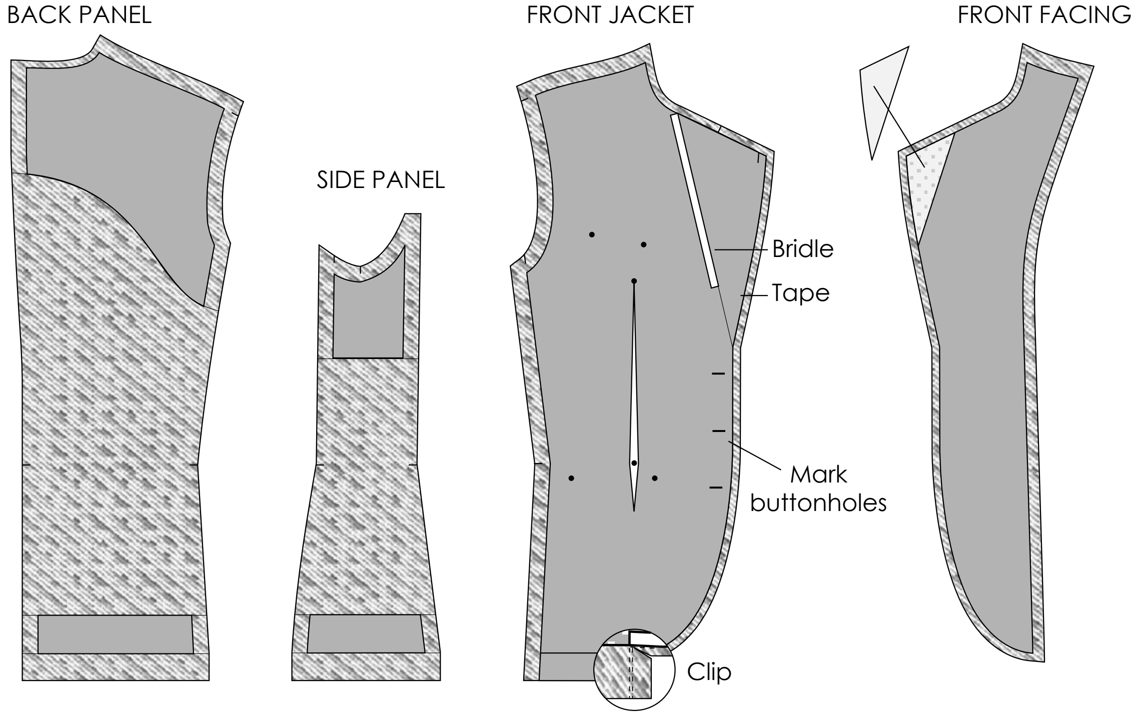
Fusible interfacing has an adhesive (resin) backing on one side and is placed on the wrong side of the fabric. Resin melts into the fiber when steam or heat is applied. The interface pattern can be cut to seam of the garment, or have 1/8" to 1/2" allowance to the interfacing. Interfacing can be woven or nonwoven, with or without fusible backing.

Fusing Pattern Parts

Figure 1

Fuse interfacings where indicated. Mark for button placements, and for the flap and welt. Chalk-mark roll line to breakpoint. Start bridal tape 3 inches above breakpoint on roll line. Continue tape on the lapel, ending 1 1/2 inches past the curve at hemline.

Figure 1


BACK PANEL
SIDE PANEL
FRONT JACKET
FRONT FACING
Bridle
Tape
Mark buttonholes
Clip

Patterns for Chest Support

Figures 2a, 2b

Trace front jacket pattern to draw three layers of interfacing patterns (a).

A firm chest piece is illustrated as three layers: first layer (1), second layer cut from Belgium linen, horsehair, or Hymo and trimmed 1/4 inch all around (2), and third layer fuses all layers to the garment (3). (Figure 2b.)

Chest support can be purchased at some tailor supply stores.

Figure 2a

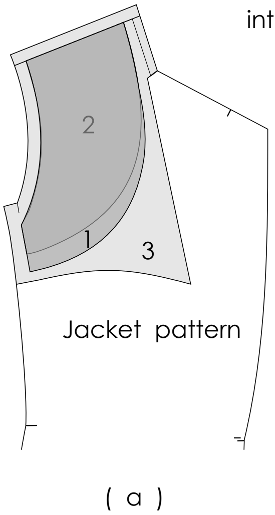
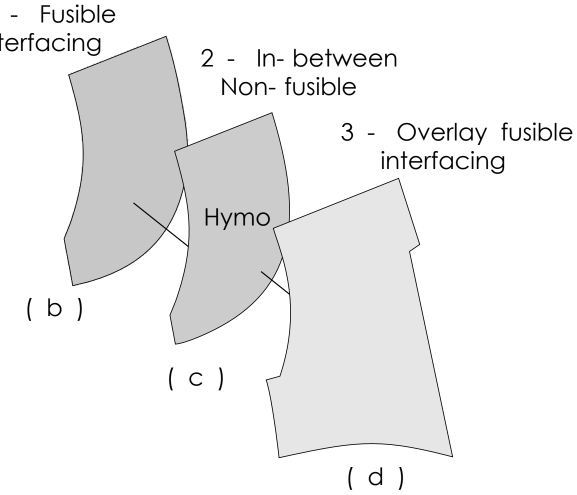

2
1
3
Jacket pattern
(a)

Figure 2b

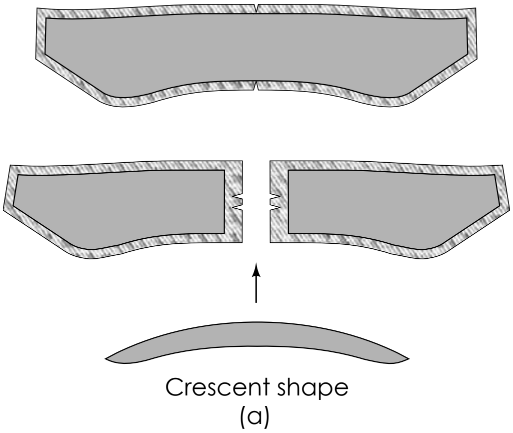

1 - Fusible interfacing
2 - In- between Non- fusible
3 - Overlay fusible interfacing
Hymo
(b)
(c)
(d)

Collar and Sleeve Interfacing

Figures 3a, b

The upper- and/or undercollar is fused. The crescent-shaped interfacing is fused to the undercollar and stitched in rows to stabilize roll line as collar folds over.

Figure 3



(a)

Assembling the Jacket

The sequence can be changed if preferred: Prepare the collar, the flap and welt pockets, and sleeves. Set aside until ready for use.

Preparing the Collar

Figure 4

- Stitch back seams together and press open.
- Fuse crescent shape at stitchline of collar.
- Stitch two to three rows to add firmness.

Stitching the Collar

Figure 5

- Pin or baste the collars together.
- Start stitching at center back. Repeat on other side.
- Trim the collar edges after stitching.

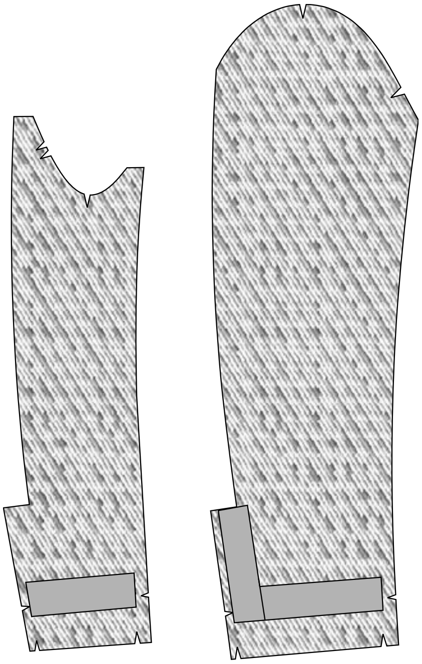
Under Stitching

Figure 6

- Turn collar to right side using the pointer to help push fabric to the collar points.
- Open the collar to the wrong side and fold seams to the undercollar. Turn collar right side up and understitch close to the seam.

Two-Piece Sleeve with Vent

- *Uppersleeve:* Fuse interfacing ending 1/2 inch below the fold of the hem and on vent extension.
- *Undersleeve:* Fuse interfacing ending 1/2 inch below the fold of the hem (Figure 3b).



(b)

Figure 4

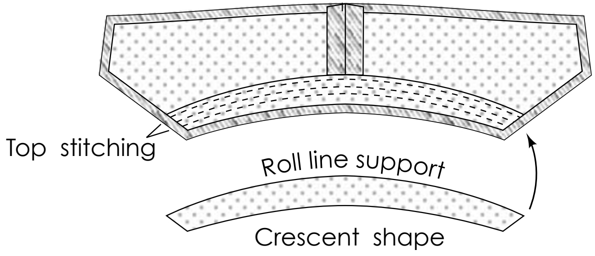


Figure 5

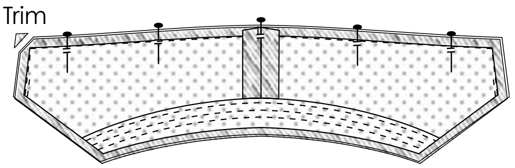
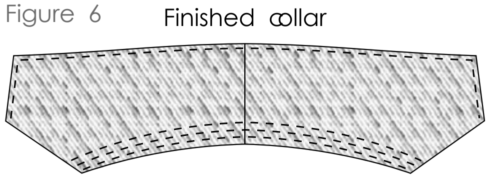


Figure 6



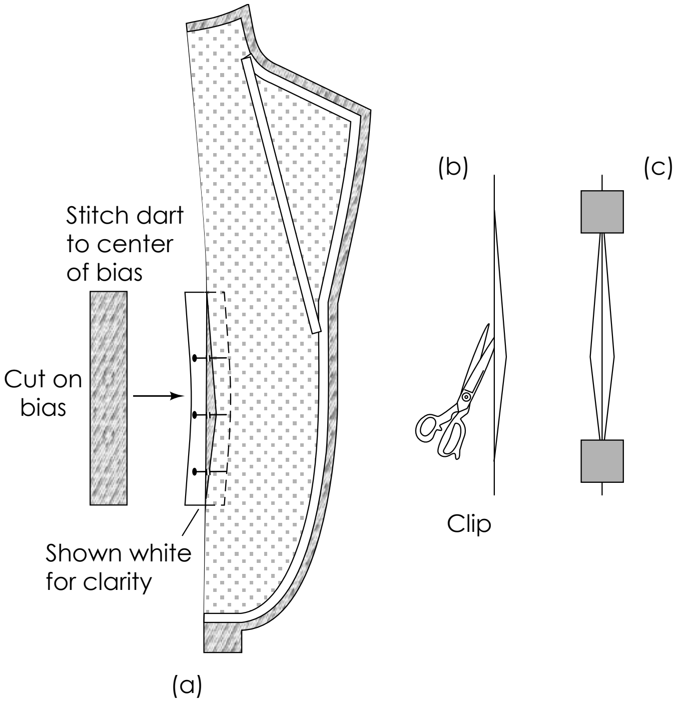
Stitch Waist Darts

Figures 7a, b, c

Two methods are illustrated:

1. Stitch waist darts. Place a bias strip of fabric underneath and stitch to darts. Press darts to one side and fold bias on other side (a).
2. Stitch dart. Cut through fold (b).
3. Press. Fuse squares on ends (c).

Figure 7


Stitch dart
to center
of bias
Cut on
bias
Shown white
for clarity
(a)
(b)
(c)
Clip

Preparation for Flap and Welt Pockets

Figure 8

Stitch side panel to front jacket, press seams open.

Instructions for marking and stitching the flap and welt pockets: see Pocket Flap and Welt section later in this chapter. After pockets are stitched, return to this page.

Choose the buttonhole from the three styles. Bound buttonholes are made before the facing is stitched to the garment.

Applying the Chest Piece

Figures 9a, b

Place first layer at the stitch line of armhole, shoulder, and side. Heat to seal. Next, place hymo on top of the first layer. Last layer placed to the seam allowance of shoulder, armhole, and side. Heat will fuse top layers, securing support for the front jacket.

Sew panels, center back, and shoulders. Press seams open.

Figure 8

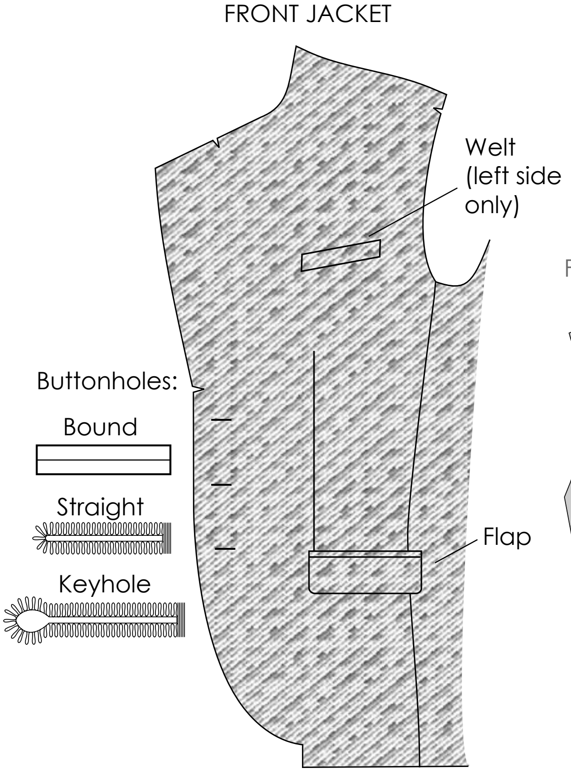

FRONT JACKET
Welt
(left side
only)
Buttonholes:
Bound
Straight
Keyhole
Flap

Figure 9a

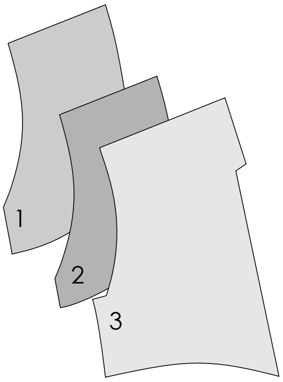
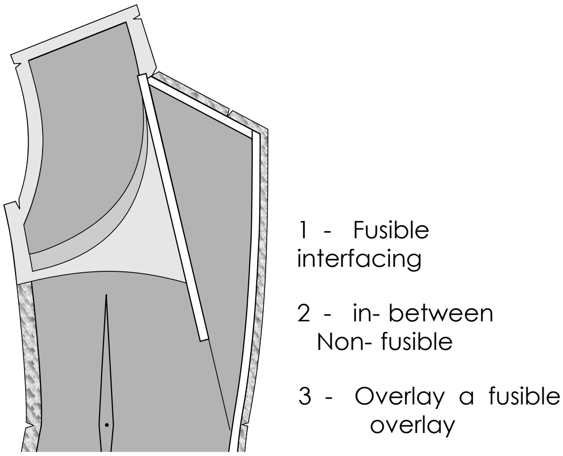


Figure 9b


1 - Fusible interfacing
2 - in- between Non- fusible
3 - Overlay a fusible overlay

Preparing the Sleeves

For sleeves without vents, omit the instructions that do not apply.

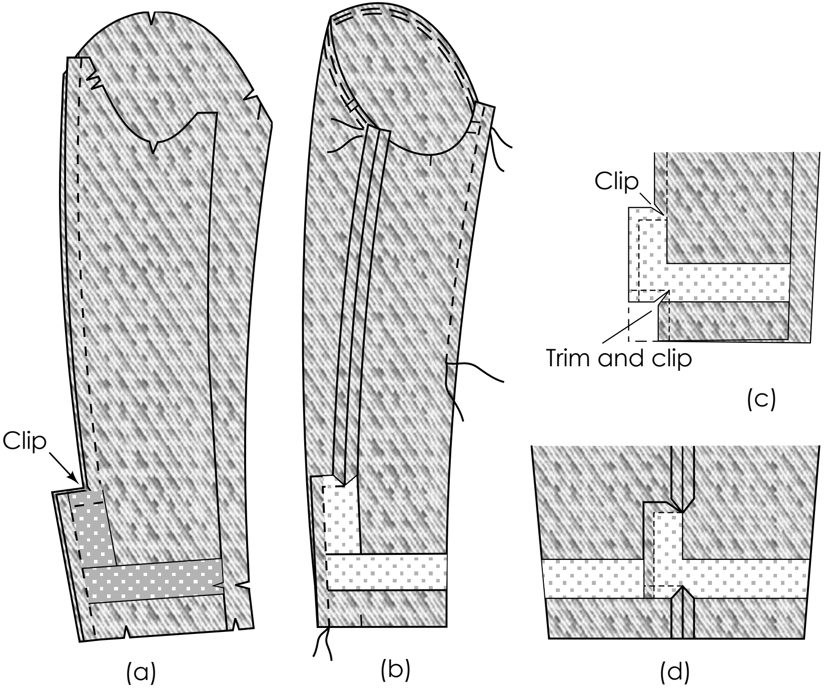
Figures 10a to 10d

- Sew seam from sleeve cap to vent; pivot and stitch 1/4 inch to hem (Figure 10a). Press seam open.
- Run a gather stitch around cap seam from notch to notch and a row 1/4 inch above.
- Stitch halfway down the remaining seam (Figure 10b).

**Option to avoid thickness:* (Figure 10c) Stitch 1/2 inch *above* fold of the vent hem and down elbow seam to hem. Trim excess, allowing 1/2-inch seams

- Press seam open (Figure 10d).

Figure 10



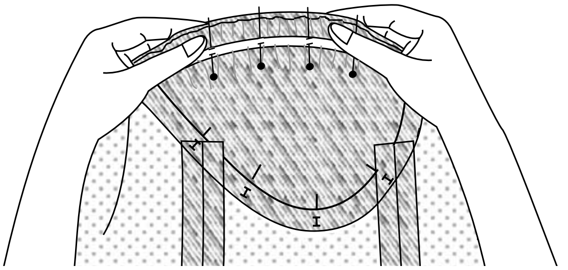
(a) (b) (c) (d)

Sleeve Cap

Figure 11

Cut a length of twill that equals the distance from front armhole notch to back notch, plus 1 inch. Pin mid-point of tape to stitchline at top cap and pin at each notch, allowing 1/2 inch to hang below. Pull gather threads until fullness equals the length of the tape and is distributed evenly. Knot threads. Sew tape to sleeve cap at stitchline. Crimp cap fullness if desired.

Figure 11

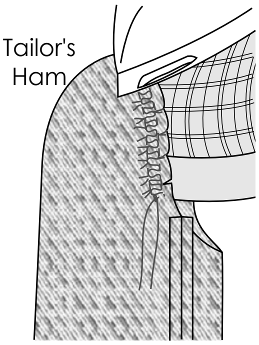


Steaming Cap Fullness

Figure 12

- Place sleeve cap over the end part of the ham or sleeve board. Pin to hold position.
- Steam the gathers; with tip of the iron, press the gathered part of the seam. A hand (mitt) helps to smooth and shape the sleeve cap.
- Allow to dry before removing.

Figure 12

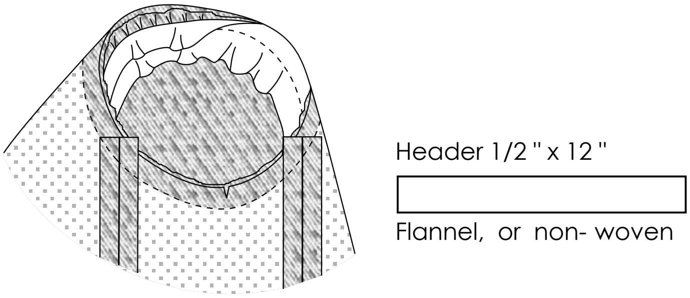


Sew Sleeve to Armhole

Figure 13

- With right sides facing, pin or baste sleeve to armhole, matching notches. Stitch.
- Pin header to sleeve cap and stitch 1/6 inch above the first row of gathers.
- Allow the header to fall downward.

Figure 13



Attaching Shoulder Pad: Two Versions

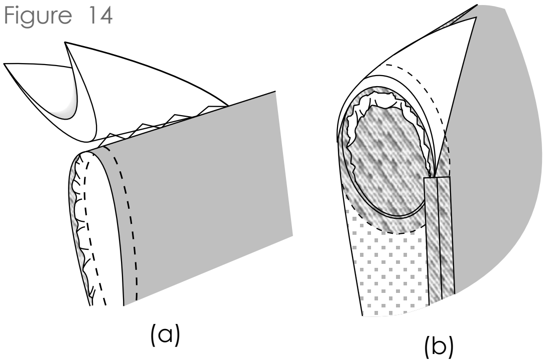
Figures 14a, b

Center the shoulder pad on shoulder line, extending to armhole seam edge.

1. Catch stitch along the shoulder (a). Fold jacket over the pad and tack at each end.
2. With shoulder pad pinned in place, machine stitch to armhole.

At this point, place garment on the form or model to analyze the sleeve.

Figure 14



Stitching Lining and Facing

Figures 15a, b, c

Stitch lining panels together. Fold action pleat and stitch across (c). Press lining seams open.

Facing: With right sides together, sew facing to lining (a), ending exactly at X point and back-stitch (b).

Flat-press facing seam.

Figure 15

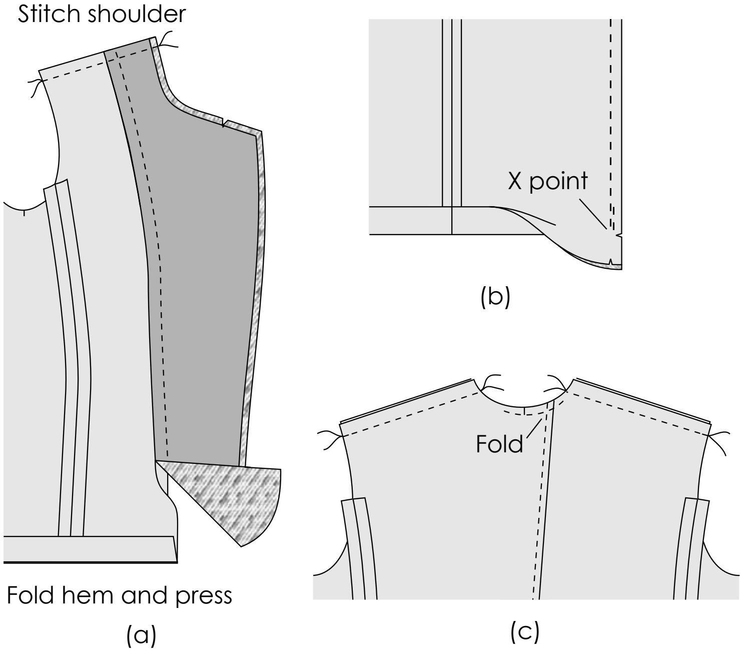
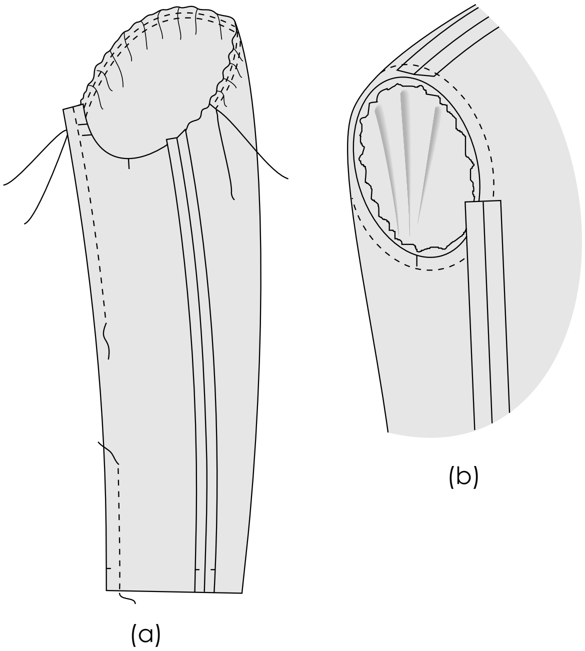


Figure 1 6



Sleeve Lining Stitched to Armhole

Figures 16a, b

Two methods for attaching the sleeve:

1. Crimp sleeve cap as it is stitched to armhole, or run a gathering stitch at cap seam from notch to notch, and another row 1/4 inch above (a). Pull thread and spread gathers evenly. Sew underseams with one seam partially stitched. Press seams open (a).
2. Match notches, pin, and stitch to armhole (b).

Stitch Collar to Jacket Neckline

Figures 17a, b

- With right sides of collar and lining together, pin and stitch *uppercollar* to lining from center back neck to notch on the facing (a). Repeat on other side.
- With right sides of collar and jacket together, pin, and stitch the *undercollar* to the jacket from center back neck to notch on the facing (b). Repeat on other side.

Figure 18

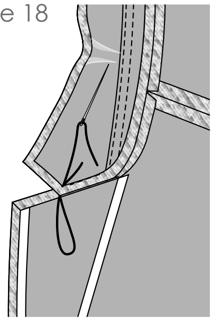
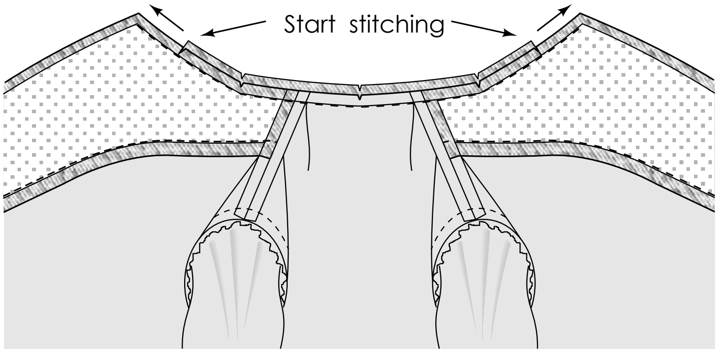


Figure 18
Press the collar's neckline seams open, and hand-stitch both together to secure the collar to the garment.

Figure 1 9


Start stitching

Sew Facing to the Jacket

Figure 19
With right sides together, pin or baste facing to jacket. Start stitching 1/8 inch up on collar seam and end 1/2 inch from curve of hem at X, and backstitch. Repeat on other side of the jacket.

Figure 20

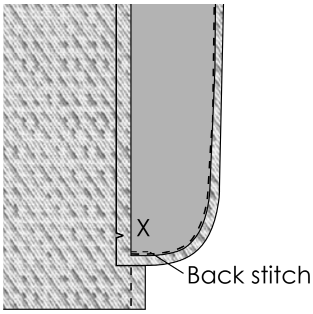

X
Back stitch

Figure 20
The illustration shows completion of the facing.

Figure 17a

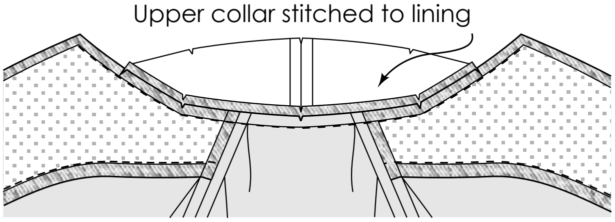
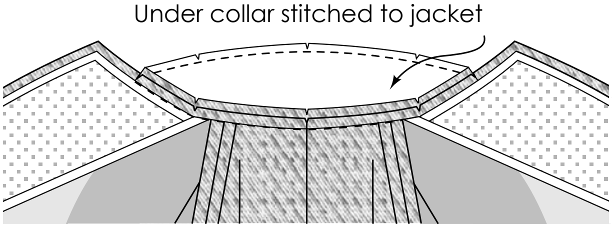

Upper collar stitched to lining

Figure 17b

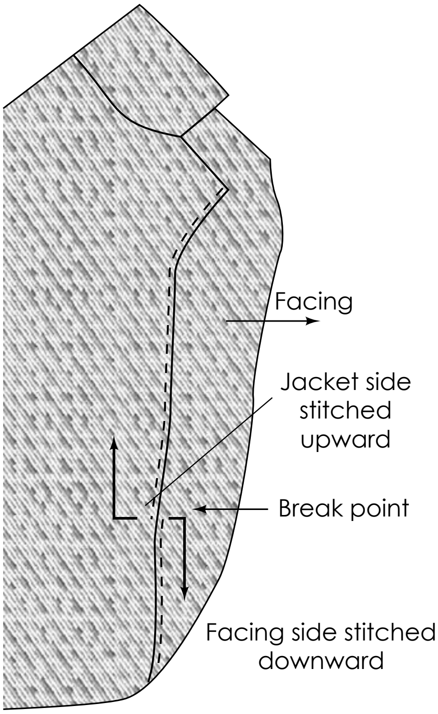

Under collar stitched to jacket

Understitching

Figure 21

- Turn facing to right side of the garment.
- Breakpoint to lapel, turn seam underneath toward jacket. Understitch on jacket side. Pull hanging thread through and knot.
- Breakpoint to hem, turn seam underneath toward facing. Understitch on facing side. Pull hanging thread through and knot.

Figure 21


Facing
Jacket side stitched upward
Break point
Facing side stitched downward

Joining Lining and Jacket Hems

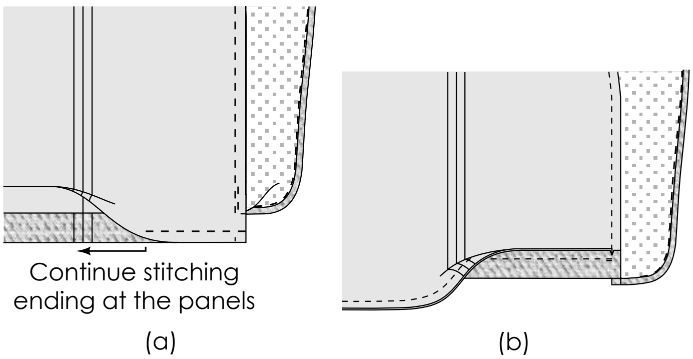
Figures 22a to d

Facing will fold under as the lining is brought down to meet the hem of the jacket.

Stitch the hemlines together and continue just to the panel (a).

Fold the stitched hems upward from point X and in line with facing seam (b).

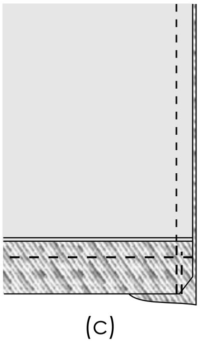
Figure 22



Continue stitching ending at the panels

Securing the Hem with the Facing

Fold facing under the lining and stitch to secure hemline to the facing (c).



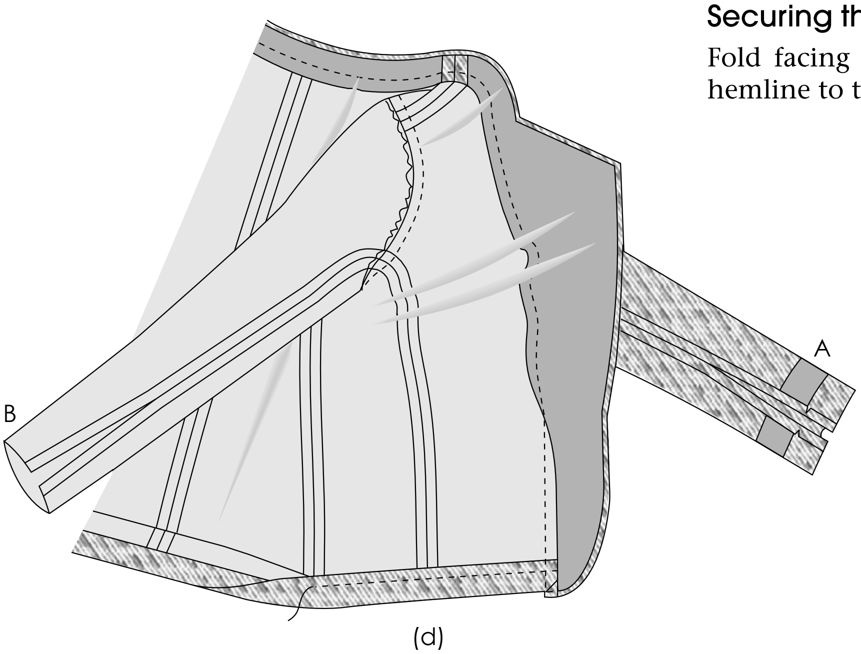


Figure 22d is a view of the lining and jacket labeling lining sleeve B and the jacket sleeve A.

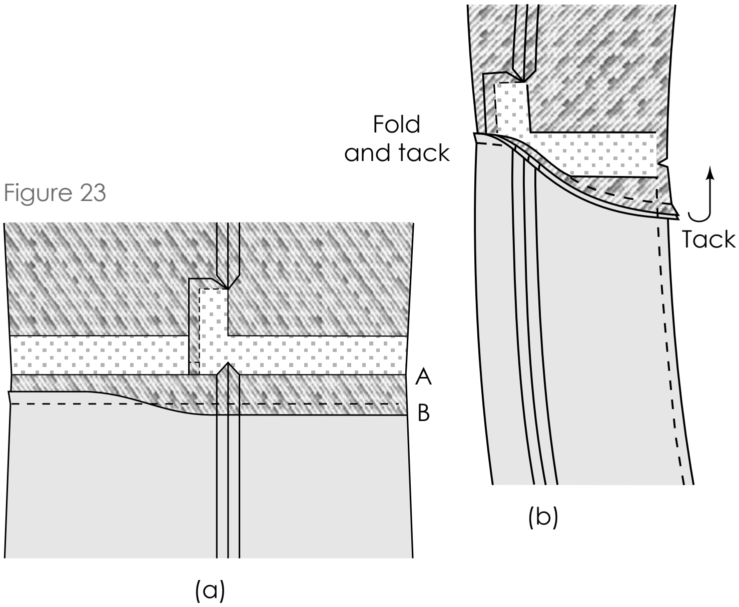
Aligning Seam Lines

Figures 23a, b

Bring sleeve lining (B) to jacket sleeve (A) with right sides facing.

Pin or baste the lining hem to jacket hem and check for correct alignment before stitching together. After stitching, fold at hemline and tack to secure at seams.

Figure 23



Pull Sleeves Through Opening

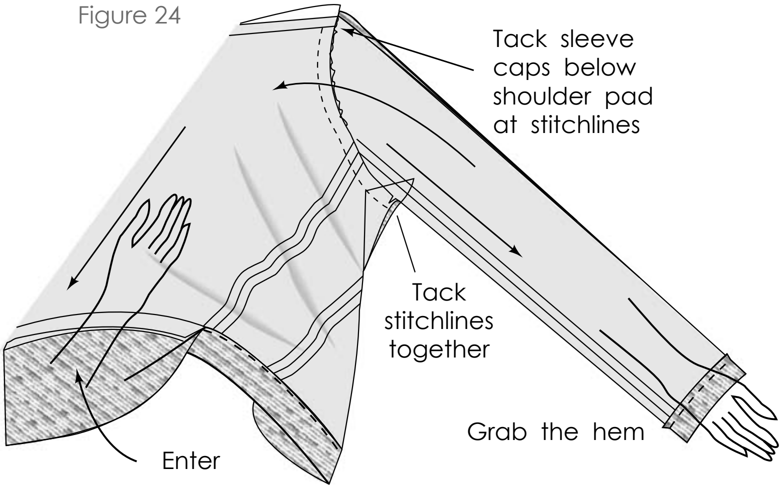
Figure 24

Slip arm into opening of the hemline and through lining of the sleeve; grab and pull both lining and jacket sleeves out at the hemline. Repeat on other side of jacket.

Tacking the Armholes Together

To secure the lining to the jacket, go back into the garment through the lining and tack to 1/4" of the seams to join shoulder tips, panels, and undercenter of the panels. Repeat for other sleeve.

Figure 24

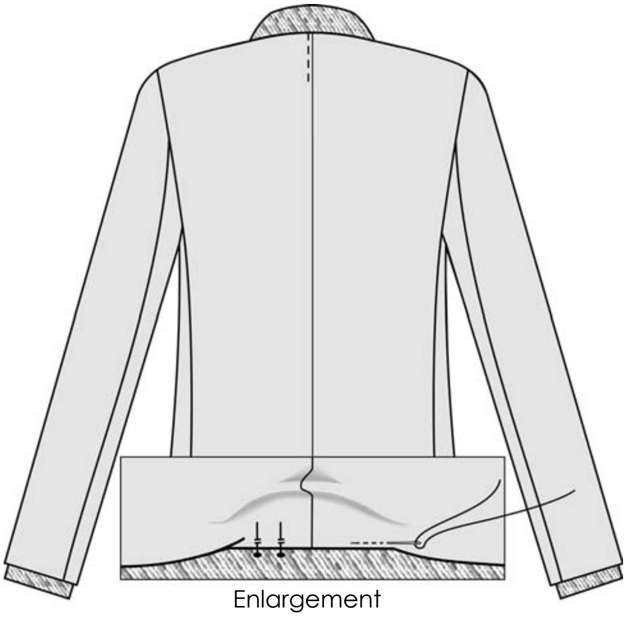

Tack sleeve caps below shoulder pad at stitchlines
Tack stitchlines together
Grab the hem
Enter

Finishing the Hemline

Figure 25

- Lay jacket out flat; fold 1/2-inch seam allowance of the lining under and lay on top of the seam allowance of the jacket.
- Hand-stitch carefully to catch only one fiber at a time. Tack at center back seam to secure the lining.
- When finished, pull sleeves through, once again turning jacket right side out.

Figure 25

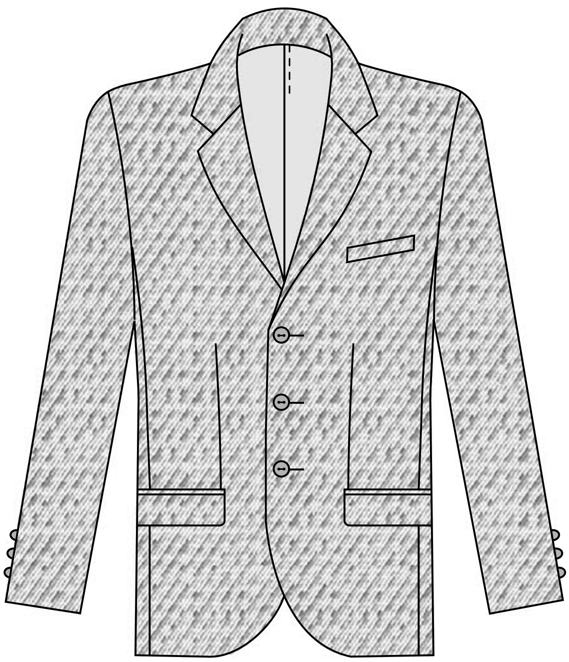


Stitch Buttons to Jacket

Figure 26

- Place buttons where marked on the garment.
- Place on the form or model for the test fit. The fitting guide follows.
- After the fit and patterns have been corrected, (including the foundation pattern) you are ready to cut the jacket in the design fabric.

Figure 26



Pocket Flap and Welt

Flap and welts are stitched to slits in the fabric for entry to the pocket pouch. The size of the pocket or welt should be in proportion to the jacket; if unsure, measure jacket pocket flap and welts at department stores.

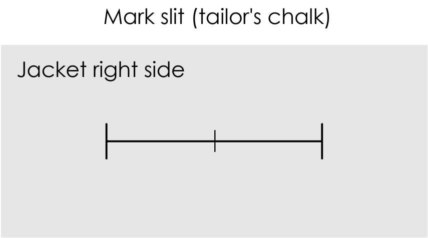
The construction of both is the same with this exception: flap stitches to top edge of the slit and welt to the bottom. A banding or piping can be attached to the flap, as illustrated.

Practice before stitching to the jacket.

Figures 1a, b, c

Pocket Slits: Decide pocket and welt locations. Mark slit to desired length with tailor’s chalk, on right side of the fabric. Mark center and draw perpendicular lines at each end (a).

Figure 1a


Mark slit (tailor's chalk)
Jacket right side

Fusible interfacing. Cut fusible interfacing 1 inch longer than slit and 2" wider. Draw pencil lines through center length and mark middle of the interfacing. Draw angle lines, as shown. Fuse to the back side, matching lines of the front slit (b).

Figure 1 b

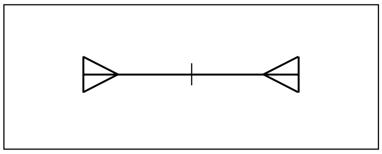


Figure 1c is the right side showing the image of fused interfacing.

Figure 1 c

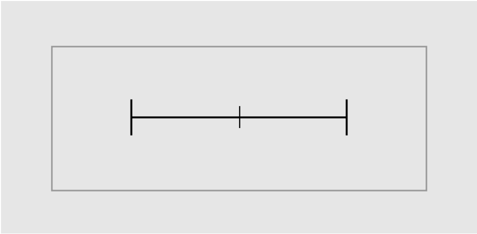
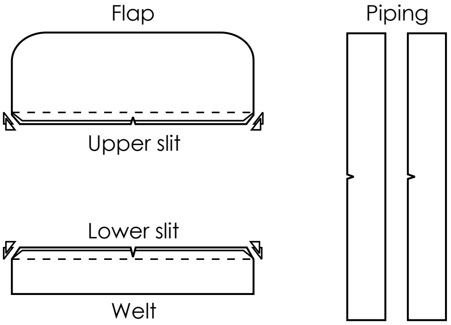


Figure 2

- *Flap and welt:* Make the flap and welt patterns, add 1/4" seams and cut in self and lining backing. Mark centers.
- *Fusible interfacing:* Cut from traced copies of the flap and welt. Remove seams and fuse to the wrong side.
- *Finish:* Stitch, press, clean seam, trim edges, and mark centers.
- *Banding:* Cut 2 strips: length of pocket plus 1" and width slightly more than 1/2". Press on fold and mark centers.

Figure 2


Flap
Piping
Upper slit
Lower slit
Welt

Figures 3a, b

Draft two pocket lining pattern sections 1" wider than flap or welt. Choose length and extend each as shown.

Figure 3a

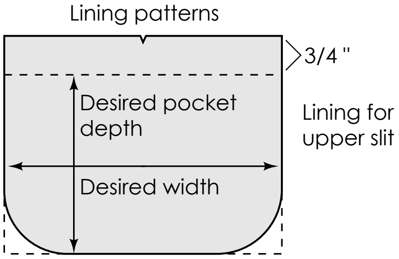
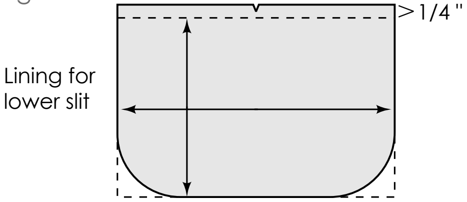

Lining patterns
3/4 "
Desired pocket depth
Lining for upper slit
Desired width

Figure 3b

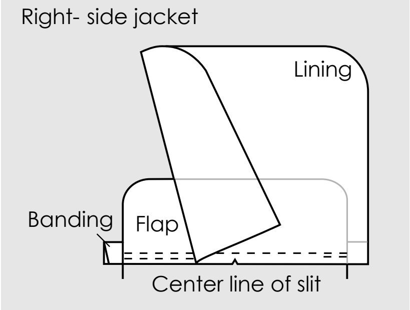

1/4 "
Lining for lower slit

Upper Part of the Slit

Figure 4

- *Banding:* Center on the slit line. The ends will extend 1/2". Stitch 1/8" starting 1/2" from end and stopping 1/2" from the end.
- *Flap:* Center the flap on top of banding with raw edges matching. Sew 1/4" seam.
- *Lining:* Center lining on the top. Stitch 1/4" starting 1/2" from the end and stopping 1/2" from the other end, and back-stitch.

Figure 4



Lower Part of the Slit

Figure 5

- Center banding on slit line and stitch 1/8" seam, starting and ending 1/2" from the ends.
- Center lining on slit line and stitch 1/4" seam, starting and ending 1/2" from the ends, and back-stitch.

Figure 5

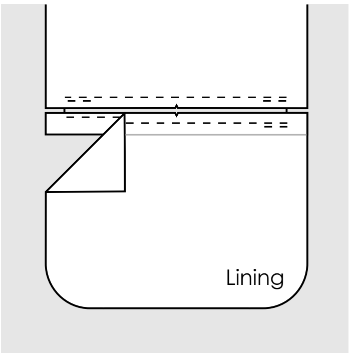
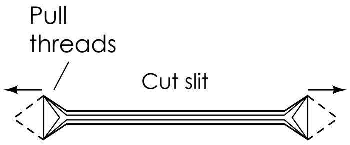


Figure 6

- Turn over to wrong side. Cut through center line and carefully cut angle lines to each corner.
- Gently push the angles to right side.

Figure 6



Figures 7a, b

Finishing the pocket:

- Fold jacket upward.
- Make sure the triangles are out and clear.
- Stitch across the triangle twice.

Figure 7a

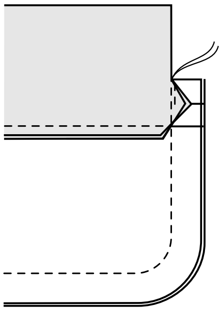
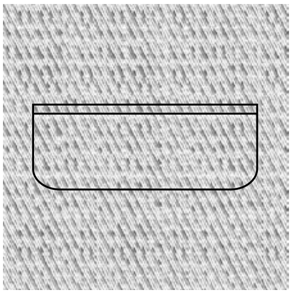


Figure 7b



Welt

See two pages back for the introduction and Figures 1 and 2.

Figures 8a, b, c
Center welt on the bottom slit and stitch 1/8" (a).

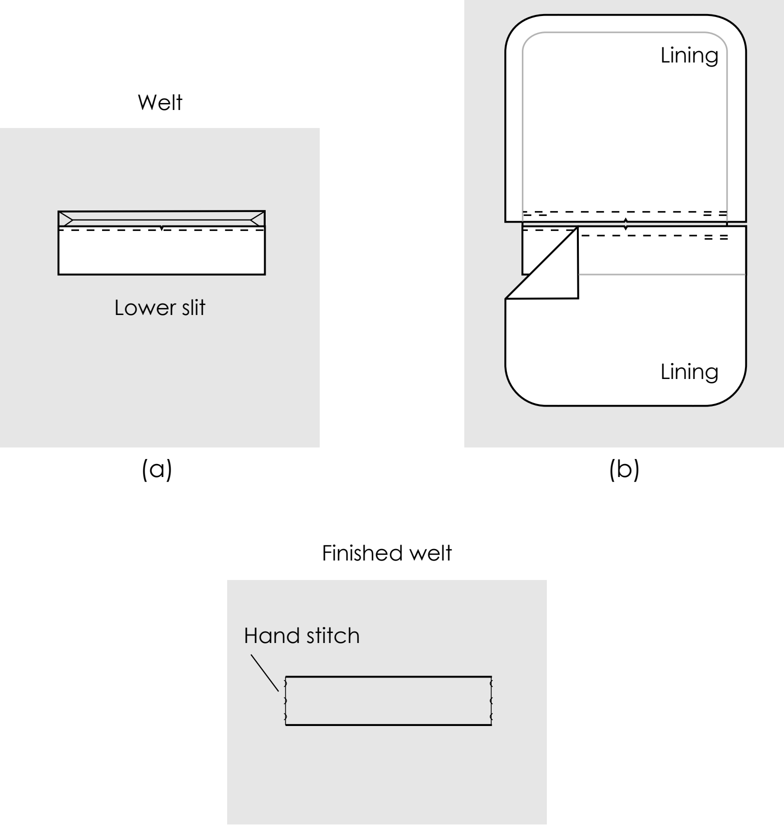
Center the lining and stitch 1/4", ending 1/2" from the ends, and back-stitch (b).

Upper slit: Center lining and stitch 1/4" starting and ending 1/2" from each end and back-stitch (b).

Pull welt through to right side. Pin lining and stitch together, see previous page, Figures 6 and 7.

The welt is hand-stitched at each side, securing to the jacket (c).

Figure 8



(a) (b)

(c)

Fitting Analysis and Corrections

The following examples are the most common points for analysis when checking the fit of the jacket. Other fitting problems may surface, but they are usually solved with these corrections.

Rotating the Sleeve

Figure 1
The center grain of a perfect sleeve aligns with side seam or slightly forward of the seam. If not, rotate the sleeve.

Underarm Sleeve Corrections

Figures 2a, b
The underarm curve of the sleeve may cause sleeve to be pushed upward, interfering with a smooth transition to notches. Remove stitches from notch to notch of the underseam. Place jacket on the form or model.

Place hands on each side of the sleeve to keep the sleeve flat to jacket. Pin to hold sleeve position (a).

Remove jacket and turn to inside. Lay flat on the table and trim the underseam of the sleeve to match armhole of the jacket. Stitch the undersleeve to the armhole and check the sleeve fit (b). Correct the sleeve pattern.

Figure 1

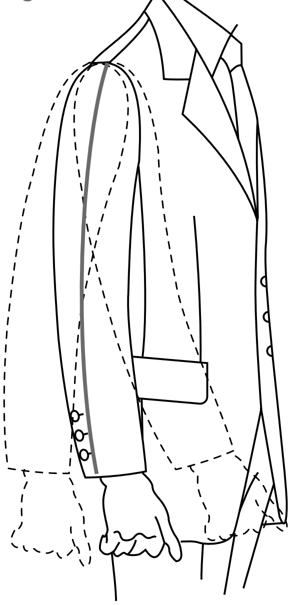


Figure 2a

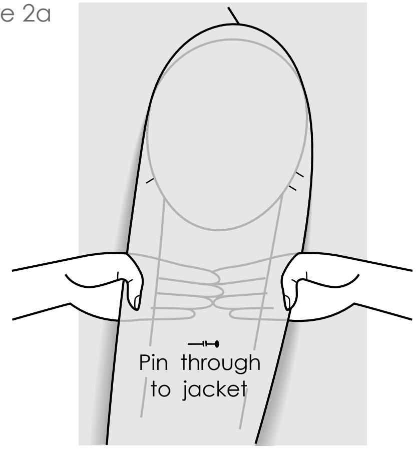
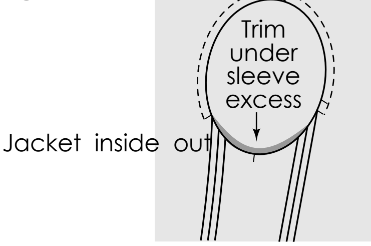


Figure 2b



Chest/Collar/Lapel Areas

Figures 3a, b

Chest area strained: Jacket pulls upward. Release collar, neck to shoulder tip. Allow jacket to fall in place. Measure the space. Place patterns on paper. Trace highlighted area. Pivot patterns downward the needed amount. Tape pattern to paper and cut to adjusted lines.

Chest/lapel too loose: Pin excess and measure. Trace front pattern, then place pattern on traced copy. Pivot pattern downward from shoulder tip the needed amount and retrace. Cut and stitch to check the fit.

Changing the Shoulder Slope

Figures 4a, b

Shoulder lines that angle toward the back can be equalized for special design arangements.

Figure 4

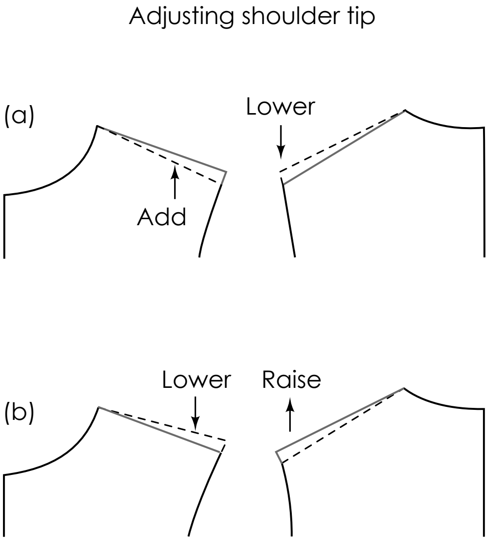

Adjusting shoulder tip
(a)
Add
Lower
(b)
Lower
Raise

Figure 3a

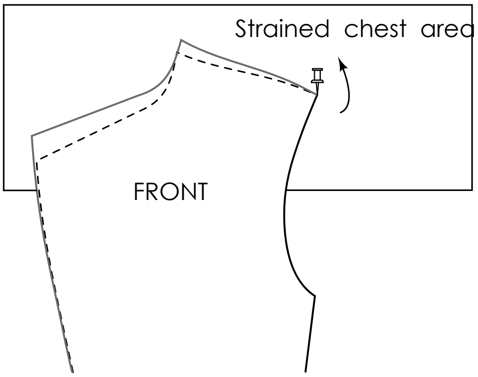
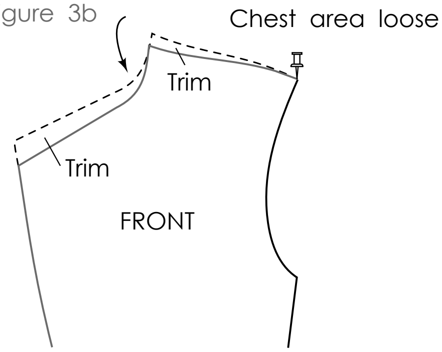
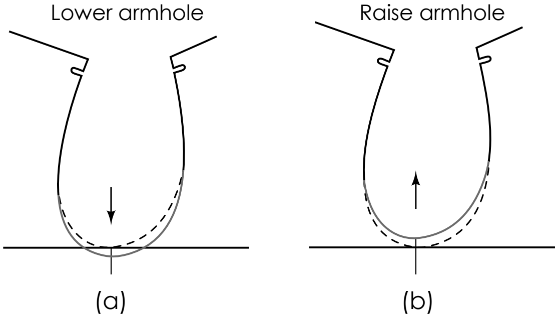

Strained chest area
FRONT

Figure 3b


Chest area loose
Trim
Trim
FRONT

Adjusting Cap Ease

Figure 5a, b, c, d


Lower armhole
Raise armhole

(a) (b)

Changing Armhole Depth

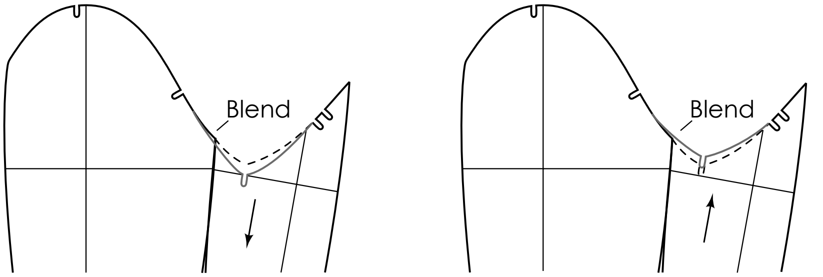
Figures 5a, b, c, d

Lower the armhole (a).

Lower the bicep an equal amount (c).

Raise the armhole (b).

Lower the bicep equal amount (c).


Blend
Blend

(c) (d)

THE SHIRT FOUNDATION

The dress shirt and casual shirt are based on the shirt foundation. Shirt ease is 5 inches. For a closer fit, take in darts and do not add a back pleat.

If slope measurements differ, equalize by adding to and taking from equally for special designs (for example, yoke shirts). See previous page, Figures 4a and 4b.

Record from Measurements Charts

Full length B _____ F_____ Across chest F _____
Across shoulder B _____ F _____ Shoulder length _____
Center length B _____ F _____ Shoulder slope B _____ F _____
Chest (one-fourth) B _____ F _____
Across back B_____
Back neck B_____

Shirt Back Foundation

Figure 1

A–B = **Full length** to waist.
Draw line to waist. Mark and continue line to desired shirt length. Mark and label C.
A–D = **Across shoulder**.
Square from A and square down about 4".
B–E = **Center length.** Mark and square from E.
B–F = One-half of B–A, less YM = 1 1/4". Mark.
MM = 1 1/2". Mark.
F–G = Chest plus 1-1/4". Mark and square from F.
B–H = F–G. Square from B.
C–I = F–G Square from C.
Connect I, H to G.
F–J = **Across back** plus 1/2". Mark.
J–K = Square up one-third of JM.
A–L = **Back neck** plus 1/8".
B–M = **Shoulder slope**.
Line touches D guideline.
L–N = **Shoulder length** plus 1/2".
Line touches and passes through M.
Square down from L to intersect with line E.
Draw neckline curve.

Figure 1

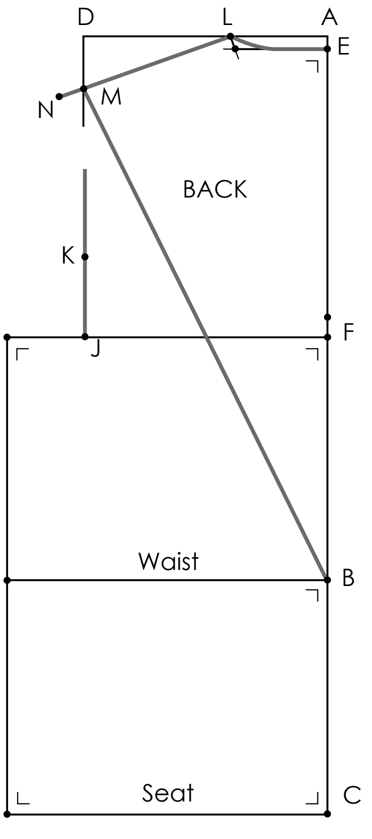
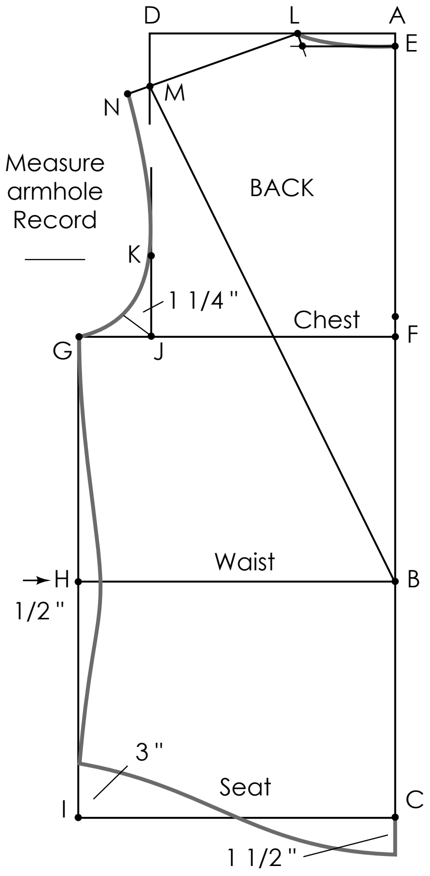


Figure 2

Armhole shape: Draw 1 1/4" diagonal line from J. Draw armhole touching N, K, angle line, and G. Indent side waist 1/2" to 3/4". Draw hemline curve and side seam.

Cut the back foundation pattern from paper.

Figure 2


D
L
A
E
N
M
Measure
armhole
Record
BACK
K
1 1/4"
Chest
F
G
J
Waist
H
B
1/2"
3"
Seat
I
C
1 1/2"

Front Left Shirt

Figures 3a, b

Turn back pattern over and lightly draw from G downward and around pattern to F (chest line).

Continue with the instructions.

B–H = **Full length,** continue line from H.

H–I = **Across shoulder** plus 1/2"

Square from H and square down 4 inches.

B–J = **Slope** line touches guideline.

H–K = A–L of the back neck.

K–L = **Shoulder length,** plus 1/2".

Line may pass J.

Square a line down from K-L line.

B–M = **Center front length,** less 3/8" and square to K line. Draw neckline with a curve rule.

F–N = **Across chest,** plus 1/4". Square up 4". Label O.

Armhole shape: Draw 1-1/8" diagonal line from N. Draw a 3/4" wide extension line parallel with the center front. Cut the pattern from paper (a).

Front left: Turn front pattern over and trace. Draw a 1-1/4" parallel line to the extension. Mark fold line and notch 3/4" out from center (b). Cut the pattern from paper.

This completes the body of the shirt foundation. The sleeve is given two pages ahead, following the yoke shirt draft.

Figure 3b

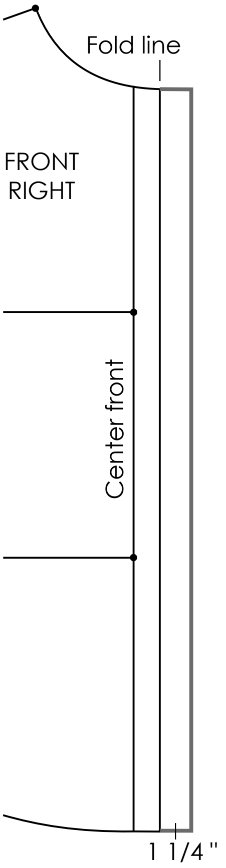
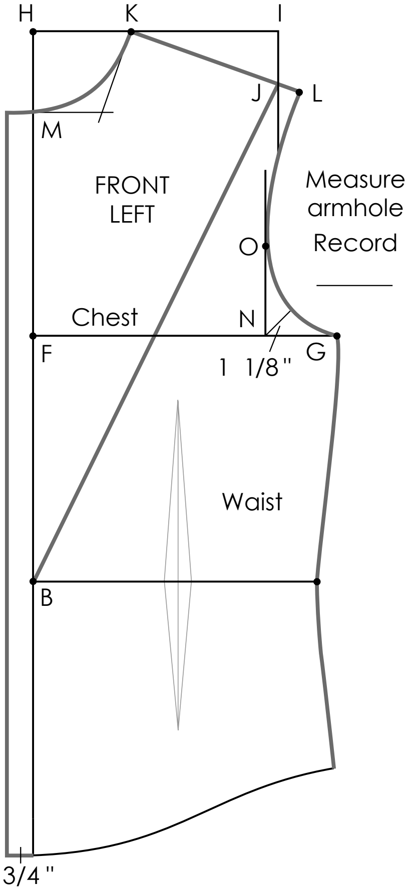

Fold line
FRONT
RIGHT
Center front
1 1/4"

Figure 3a


H
K
I
J
L
M
FRONT
LEFT
Measure
armhole
Record
O
Chest
N
F
1 1/8"
G
Waist
B
3/4"

Yoke

Figures 4a, b

Trace the front and back foundation patterns.

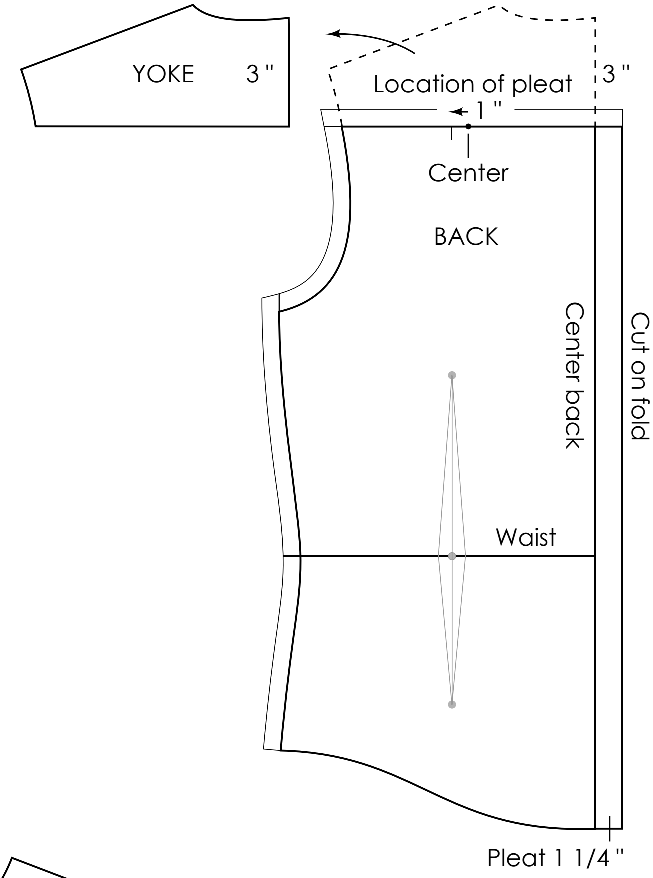
Back

- Mark 3" down from center back neck and square across the pattern for yoke line. Below yoke line, add 1 1/4" for pleat (if desired). Mark location of the pleat.
- Cut the pattern and separate the yoke (a).

Front

- Draw a line 1 1/4" down from the front shoulder tip and draw a parallel line with shoulder. To complete the yoke, cut pattern and separate upper part (b).
- Add 1/2" seam to the lower pattern and cut.

Figure 4a

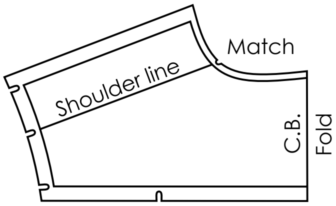


Completing the Yoke

Figure 5

Match front and back yoke shoulder lines and trace. Add seams, and notch shoulder tip and neck.

Figure 5



Pocket

Figure 6

Draft the pocket; use measurements as a guide. Draw pocket on the shirt, and mark guide marks for placement.

Figure 6

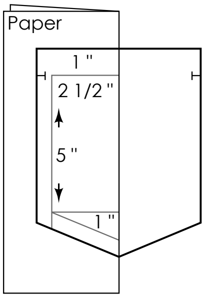
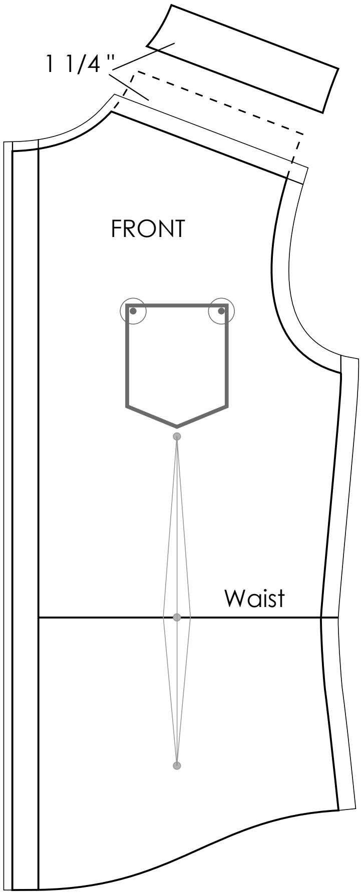


Figure 4b



Additional Information

Dart locations are shown if a closer fit on the front and back shirt is desired. Pin dart intake and taper side seams at the time of the fitting and do not include the back pleat.

Sleeve cap ease should not be more or less than 3/8" to 1/2 inch.

Puckering around the armhole: indication that sleeve cap needs more ease.

Puckering along the sleeve cap: indication that there is too much cap ease.

Correct the biceps line by adding to or decreasing both sides of the bicep to adjust needed amount.

Shirt Sleeve Measurements

Record from chart or personal measurements: Sleeve length, _______ Cap height: _______ Bicep: _______

Figure 1

A–B = **Sleeve length** less 2-1/2" for cuff.

A–C = **Cap height** less 1/2".

Square out from each side of C.

C–D = **Biceps.** Mark one-half of bicep.

C–E = C–D

Draw lines from D and E to A.

Divide into fourths. Square out and mark measurements given. Use curve rule touching each point.

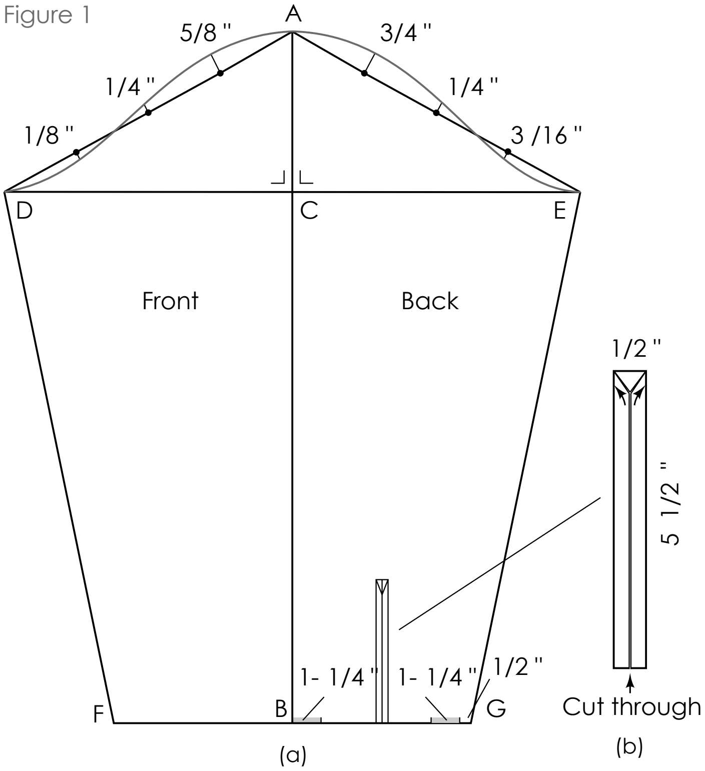
Hemline: See Figure 2 for cuff length. Add to the measurement two 1 1/4" pleats (2 1/2") and square out equally from B to F and to G. Draw lines from F to D, and G to E.

Hem options (a).

Slit placement: Half the distance from B to G, less 1/2". Slit length is 5 1/2". See (b).

Walk the sleeve to armhole, and mark notches: 1 notch front and 2 notches in back. (Ease allowance about 1/2 inch. Adjust if necessary.)

Figure 1



Cuff

Figures 2a, b

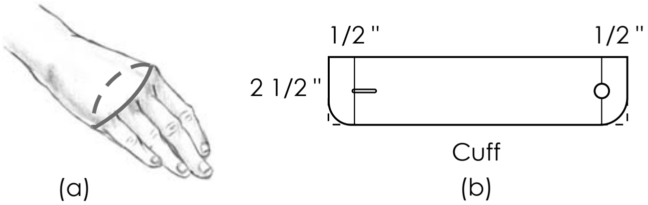
Measure hand for entry measurement and add 1/2", or choose a size from the following.

Small = 9", Medium = 9-1/2", Large = 10.

Cuff includes 1" extension for button placement.

Width of cuff = 2 1/2". See example (b).

Figure 2



Collar and Stand

Figures 3a, b, c

Record: Shirt pattern from C.B. neck to shoulder ________ and shoulder to C.F. neck ________. Total ________.

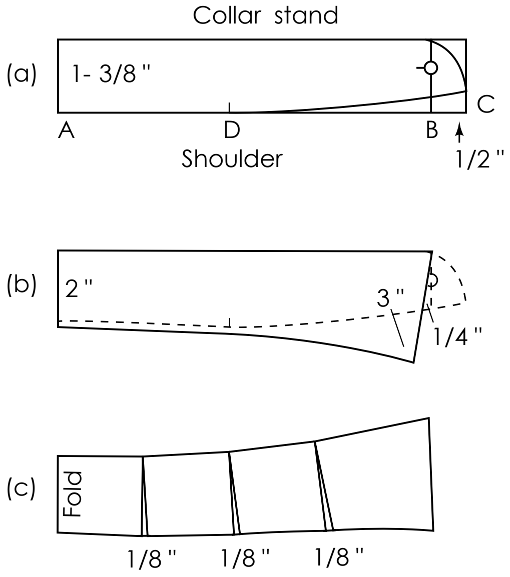
Draw a rectangle 1-3/8" wide and length of the neckline measurement, A to B, plus 3/4". Mark C. Square up from C. Mark shoulder notch, D.

Mark 1/2" up at C. Draw curve lines from C to B and end at D to complete collar stand. Cut from paper.

Collar: Trace collar stand. Draw collar shape, using measurement given (b).

Cut collar, slash and spread, as shown (c). Trace and cut two copies and interfacing. Repeat for collar stand.

Figure 3



Placket Design

Binding

Figure 1
Length = 5 3/4", width 1-1/2". Includes 1/4" seams.

Placket

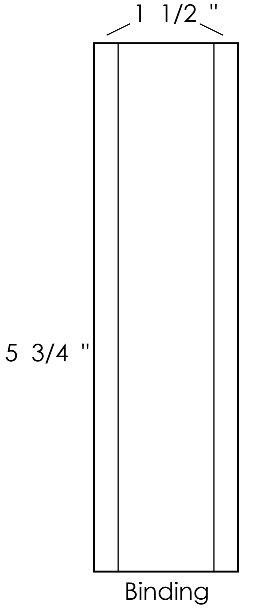
Figures 2a, b, c
A–B = 7". Draw line.

- Mark on line: A to C = 3/8"; A–D = 1-5/8".
- Square out from A, B, C, D, as follows:
  A = 1". Label E. Mark X at center of A–E.
  C = 1-1/2" and label F.
  D = 2" and label G.
  B = D–G and label H (a).

- Square down from X, E, F, and G to B–H line (b).
- Extend G line up 1/2".
- Square in from G and mark slit 1/4" (b).

- Add seams as indicated, and mark buttonhole at center between D–B levels (c).

Figure 1


1 1/2 "
5 3/4 "
Binding

Placket design

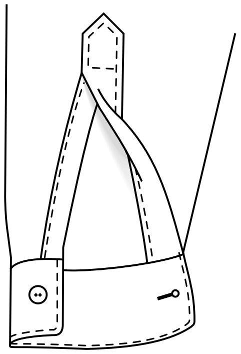
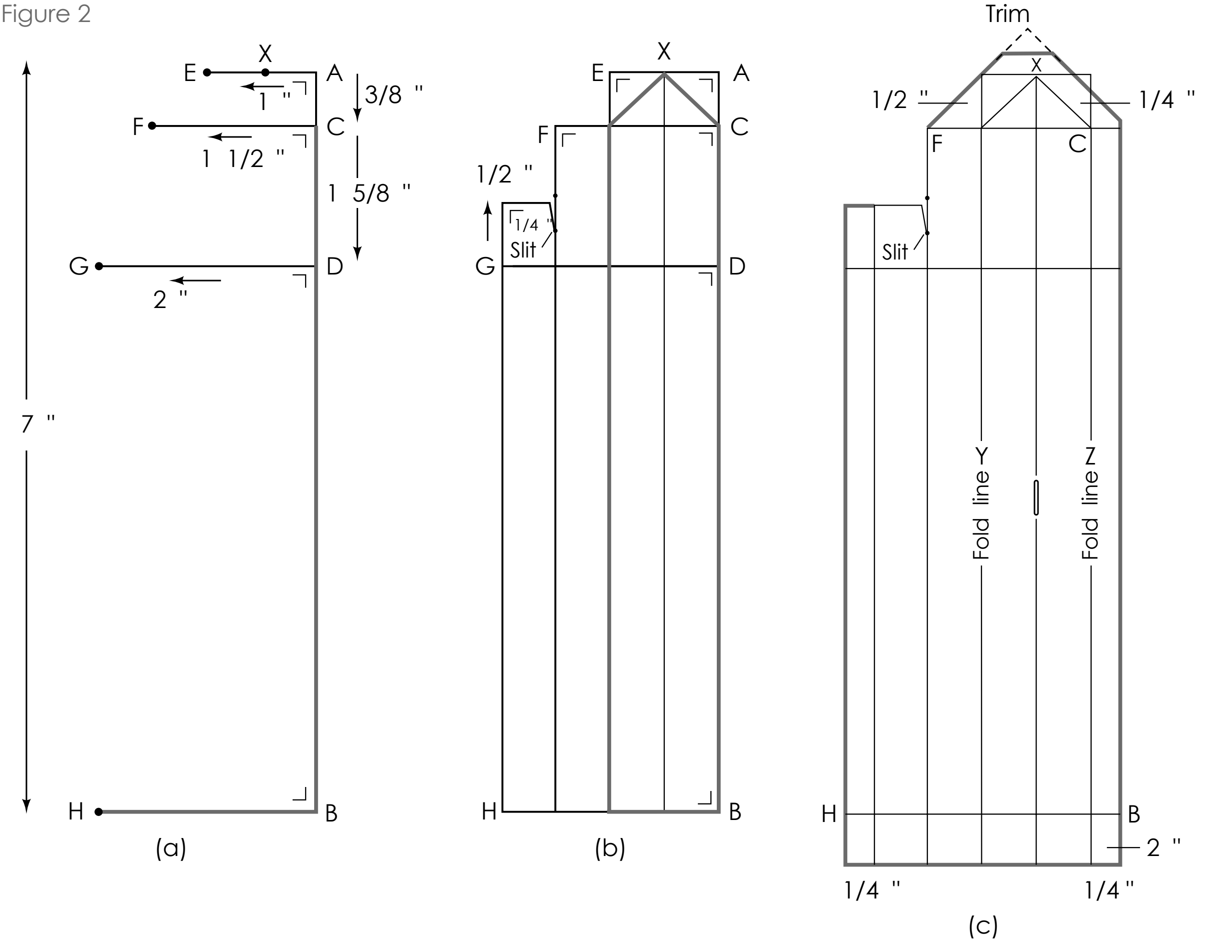


Figure 2

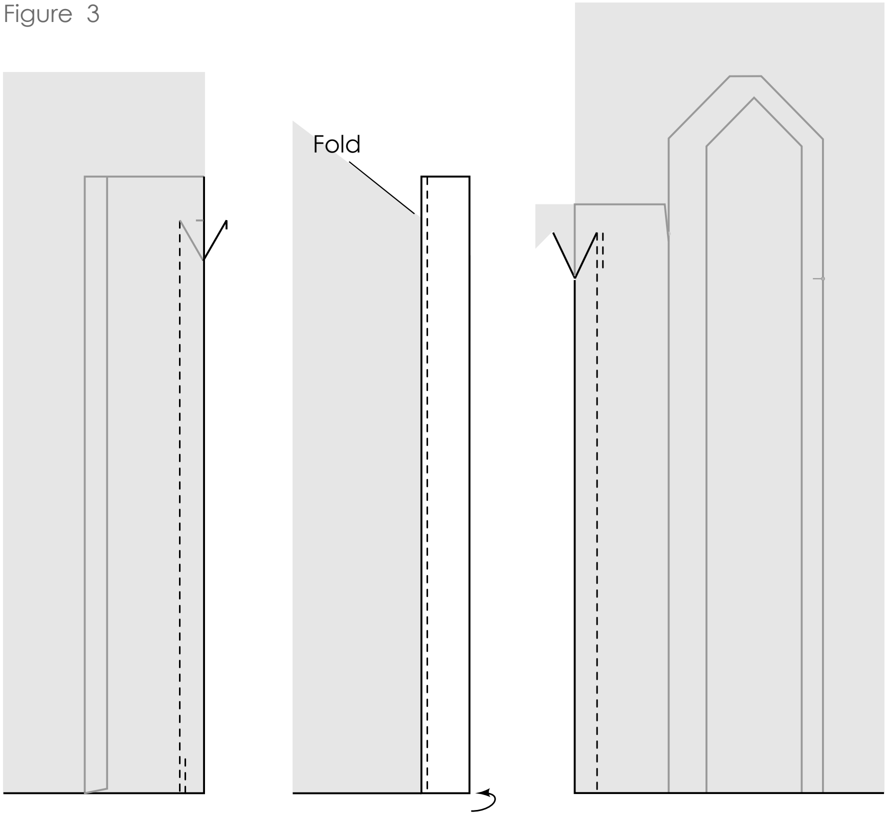

E
X
A
1 "
3/8 "
F
C
1 1/2 "
1 5/8 "
G
D
2 "
7 "
H
B
(a)
E
X
A
F
C
1/2 "
1/4 "
Slit
G
D
H
B
(b)
Trim
X
1/2 "
1/4 "
F
C
Slit
Fold line Y
Fold line Z
H
B
2 "
1/4 "
1/4 "
(c)

Figures 3a, b, c

Binding

- Press a 1/4" seam on the wrong side. Then place right side of binding to the wrong side of the sleeve slit. Stitch up to the angle cut (a).
- Turn binding over and edge-stitch.
- Move shirt away to complete the stitching (b).
- Place placket under the slit line with wrong sides together.
- Stitch a 1/4" seam to the end of the slit line; back-stitch (c).

Figure 3



(a) (b) (c)

Figure 4

- Turn placket outward. Fold the 1/4" seam to face the placket.
- Fold 1/4" on Z line.

Figure 4

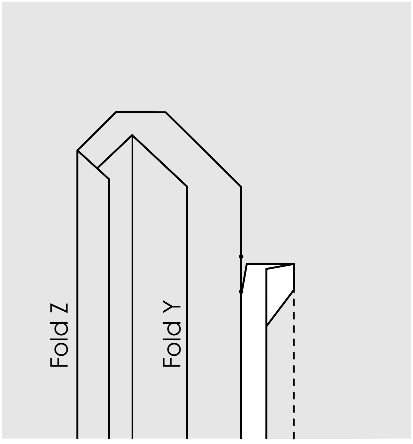


Figure 5

- Turn to the back placket. Bring up the slit point and stitch across.
- Turn placket to right side, folding on the Y line.

Figure 5

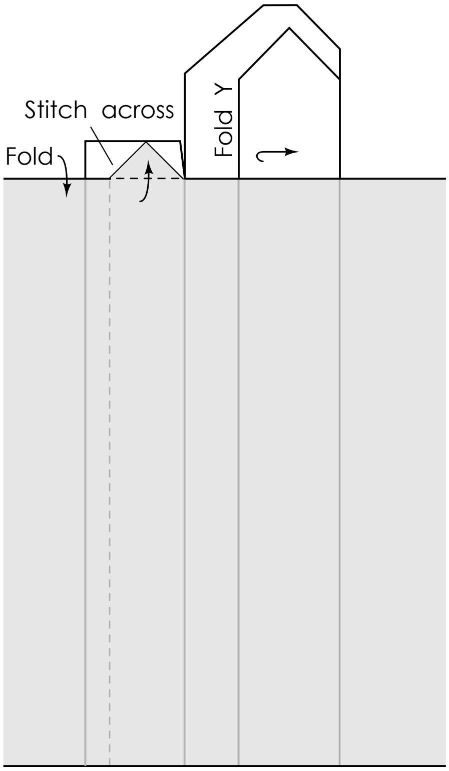
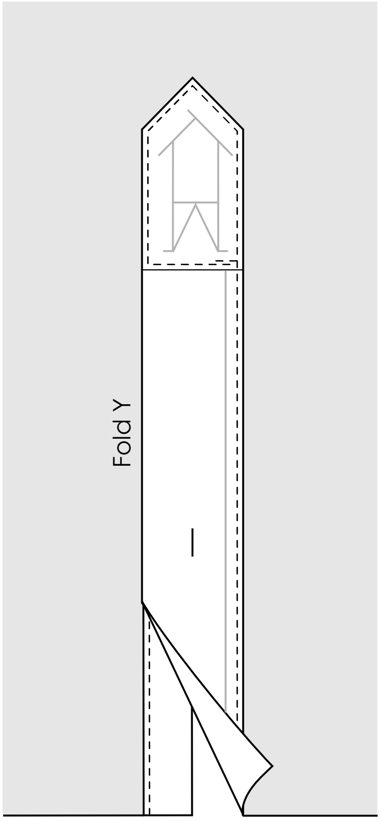


Figure 6

- Place the Y fold on the stitch line.
- Edge-stitch the placket, as shown.

  Placket covers the internal part.

Figure 6



Shirt Front Facing

Figures 1a, b, c

Left side of the front shirt

Trace part of the neckline with extension and hem.

Draw a parallel line 3/4" on both sides from center front, a total width of 1 1/2" (a).

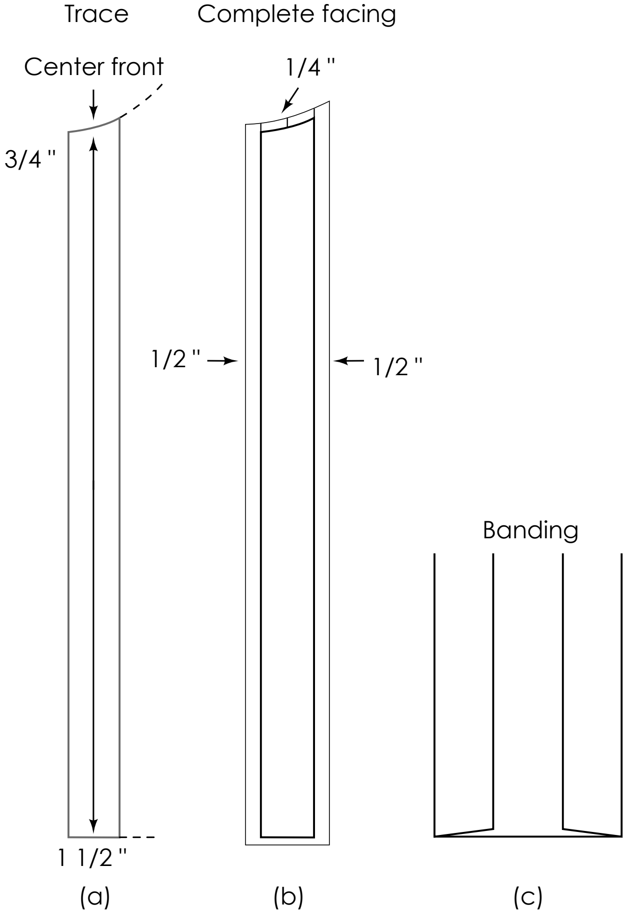
Add 1/2" seams to each side of the facing and 1/4" seams at the neckline and hem (b).

Cut from paper.

Sewing Guide

Cut shirt and facing in fabric. Fold 1/2" seams on both sides of the facing and press (c).

Figure 1


Trace
Complete facing
Center front
1/4"
3/4"
1/2"
1/2"
Banding
1 1/2"
(a)
(b)
(c)

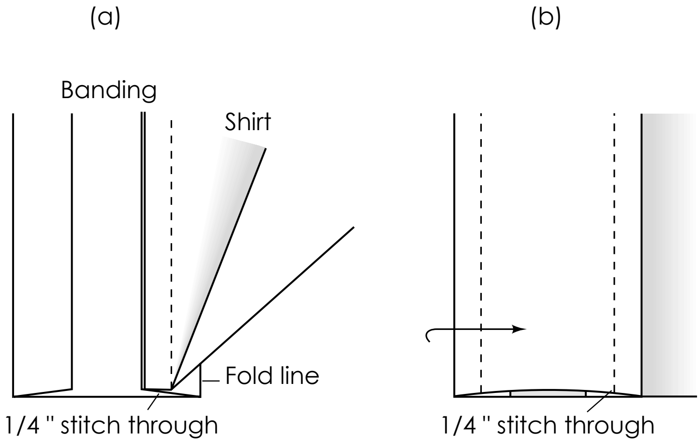
Figures 2a to 2d

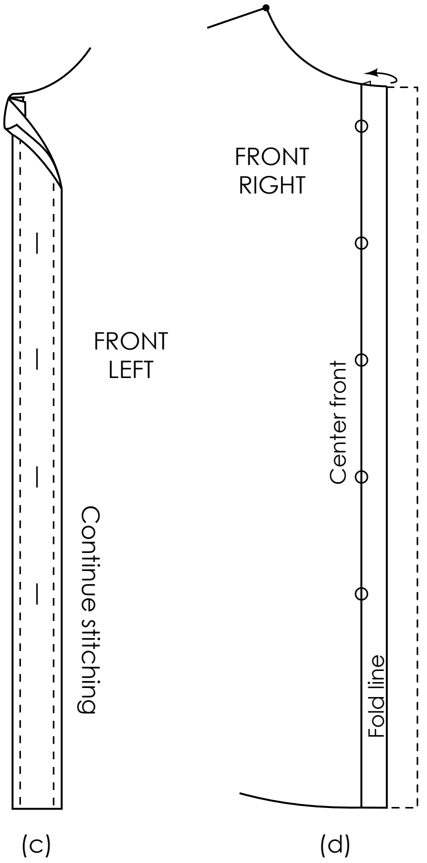
- Place right sides together. Lay the seam edge of the shirt to seam edge of the facing fold, and sew 1/4" through the length of the fold (a).
- Turn the facing on the fold line to the shirt, and top-stitch 1/4" in from the fold (b).
- Continue to the length of the shirt (c).

Right side of the shirt

- Fold facing at the extension notch, and fold under 1/4" seam allowance and edge-stitch through the length of the front shirt (d).
- Mark button/buttonhole placements.

Figure 2


(a)
(b)
Banding
Shirt
Fold line
1/4" stitch through
1/4" stitch through


FRONT RIGHT
FRONT LEFT
Center front
Continue stitching
Fold line
(c)
(d)

THE CASUAL SHIRT

The casual shirt is based on the classic shirt pattern.

Figure 1
Adding fullness: Slash and spread 1/2" and lower armholes 1". Measure front and back armholes. Divide in half and record = _______.

Sleeve

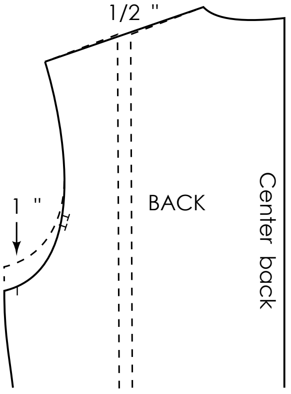
Figure 2

- Trace sleeve on fold to desired length.
- Lower cap 1/2". Raise biceps 1" and extend line.
- Draw line from X to biceps line equal to armhole measurement.
- Divide into fourths and mark measurements given. Draw cap curve as shown.

Rule: Lower sleeve cap (A) equal to the extended shoulder (retain sleeve length).
Raise biceps equal to the lowered armhole. (Gives underarm lift and will create folds.)

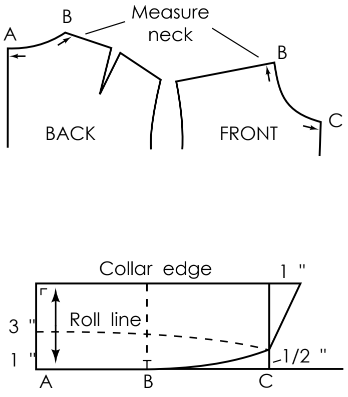
Figures 3a, b
Collar, as illustrated.

Figure 1



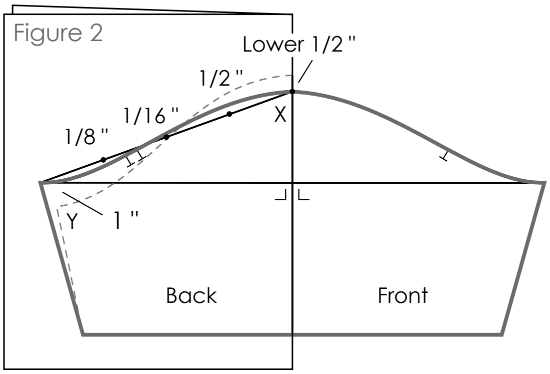
1/2 "
1 "
BACK
Center back

Figure 3



A
B
Measure neck
B
C
BACK
FRONT
Collar edge
1 "
3 "
Roll line
1 "
1/2 "
A
B
C

Figure 2



Lower 1/2 "
1/2 "
1/16 "
X
1/8 "
Y
1 "
Back
Front

THE VEST

The vest is a traditional part of the suit, and it is designed in many different ways. The vest has become an eclectic fashion item for those who wear the vest over any garment other than under a jacket.

The vest is based on the jacket foundation; if unavailable, see Drafting the Men's Jacket Foundation section earlier in this chapter, Figures 1, 2, and 3.

Figure 1

- Trace jacket foundation 5" below waist.
- Mark chest and waist. Draw a line 1/8" parallel to the neckline (to be trimmed).
- Square up from hem to X, and 1/2" to 5/8" out from each side of X. Label Y and Z.

A = 1 1/2" below X, Y, and Z. Mark across lines.

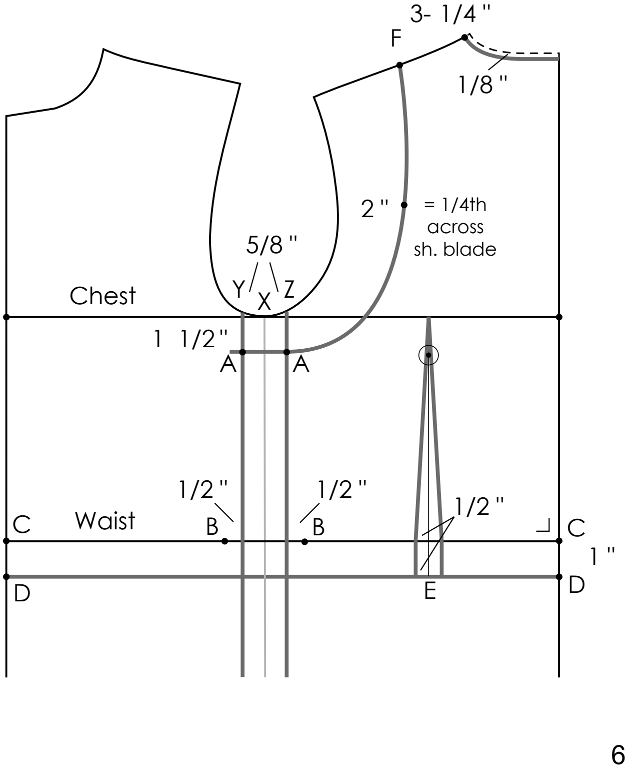
B = 1/2" in from each side waist on Y, Z lines.

C = Center back waist. Mark 1" down. Label D. Square from center back to center front.

E = Center between B and C. Mark, and square in both directions, ending at chest. Mark 3/8" to 1/2" for dart intake. Draw darts from E ending at chest line.

F = 3 1/4" from neck. Draw armhole from F, touching the 2" mark and ending at A.

Figure 1



3- 1/4 "
F
1/8 "
2 "
= 1/4th across sh. blade
5/8 "
Y
X
Z
Chest
1 1/2 "
A
A
Waist
C
1/2 "
B
1/2 "
B
1/2 "
C
1 "
D
E
D

Figure 2

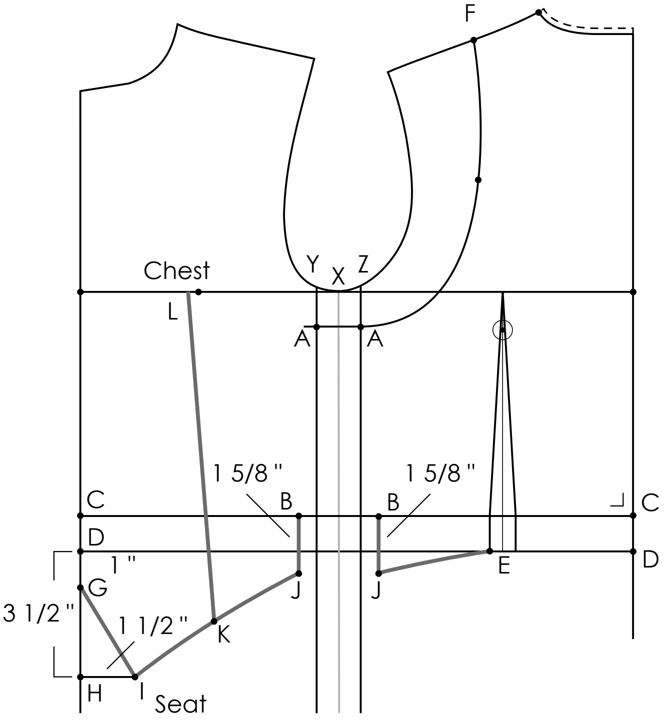

F
Chest
Y
X
Z
L
A
A
1 5/8"
1 5/8"
C
B
B
C
D
D
1"
G
E
J
J
3 1/2"
1 1/2"
K
H
I
Seat

Figure 2

G = 1" down from D.

H = 3 to 3 1/2" down from D.

I = Square in 1 1/2" from H.

J = 1 5/8" squared down from B at front and back.

Draw curved line I to J. Continue line from J and blend to the back waist dart.

K = Center between I and J.

L = Center between Y line and center front, plus 1/2" (toward center front).

Draw line from K to L.

Figure 3

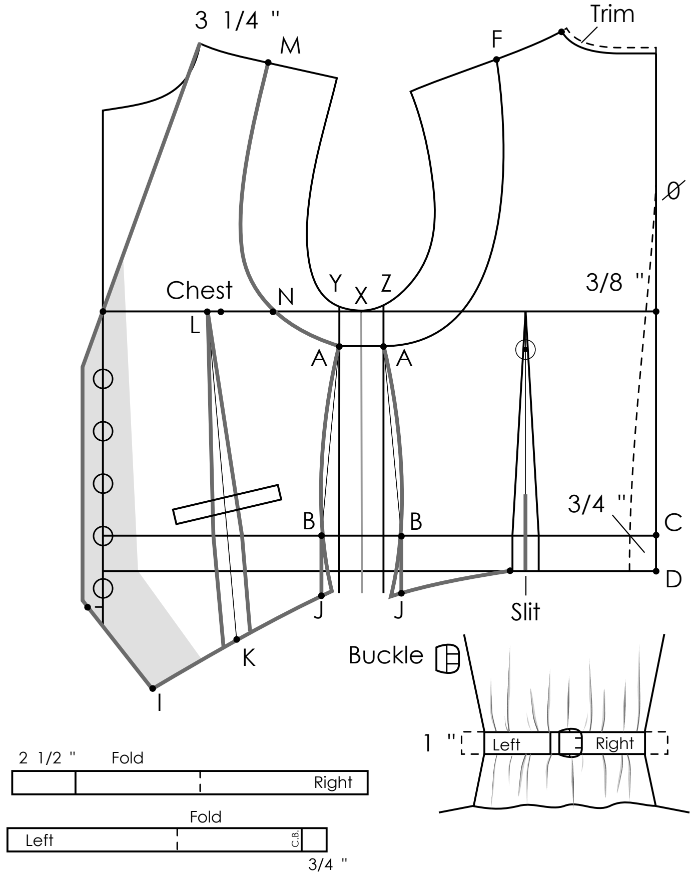
- Mark dart (3/8" to 1/2") out from K, and parallel with line to waist. Draw lines (slightly curved) to I.
- Draw V-line from neck, passing chest line, 3/4" and parallel to center front.

  M = 3 1/4" from neck. Mark.

  N = Between Y and L. Mark.

  Draw armhole from A to N and ending at M.
- *Side seam:* Draw slightly curved lines from A to B, and end 1/4" out from J.
- *Check point:* The waist should measure 1" greater than the trouser waist. Remove excess from center back (broken lines), or control excess with strap and buckle inserted in a slit in the back dart. Strap is 1" wide, and length is decided at the fitting.
- Interface the front vest and around the neck. Face the front vest if desired (shaded area). Line the vest to the facing.
- Mark button placements and draw welt pockets. Cut patterns; add seams and test fit the vest and length of straps.

Figure 3


3 1/4"
M
F
Trim
Ø
Chest
N
Y
X
Z
3/8"
L
A
A
3/4"
B
B
C
D
J
J
Slit
K
Buckle
I
1"
Left
Right
2 1/2"
Fold
Right
Fold
Left
C.B.
3/4"

BASIC PANT FOUNDATION FOR TROUSER

The pant foundation is a loosely fitted pant and is drafted to the *natural waist*. The pant foundation is the base for the Classic Pleated Trouser and for the draft of the Slack foundation. The *CF waist depth* is marked in step 3. Trace the pant foundation for creating designs.

Measurements needed: Use personal or chart measurements: Place in the spaces.

Figure 1

A–B = **Pant length** ________.

A–C = **Crotch depth**, plus 3/4" ________.
Tailors refer to depth as the rise.

C–D = **Hip depth:** one-third of C–A.

C–E = **Knee depth:** one-half of C–B, minus 1 1/2" to 2".
Square out from A, D, C, E, B.

D–F = **Back hip arc**, plus 1/4" ________.

C–G and A–H = D–F. Connect G to H.

G–X = Half of G–H.

D–J = **Front hip arc**, plus 1/4" ________.

C–K and A–L = D–J. Connect K with L.

K–X = Half of K–L.

H–M = Mark in 3/4" and up 3/4".

M–N = **Back: Waist arc**, plus 1" includes 1 dart and 1/4" ease.

L–O = **Front: Waist arc**, plus 1 1/4" includes 2 darts and 1/4" ease.

Figure 1

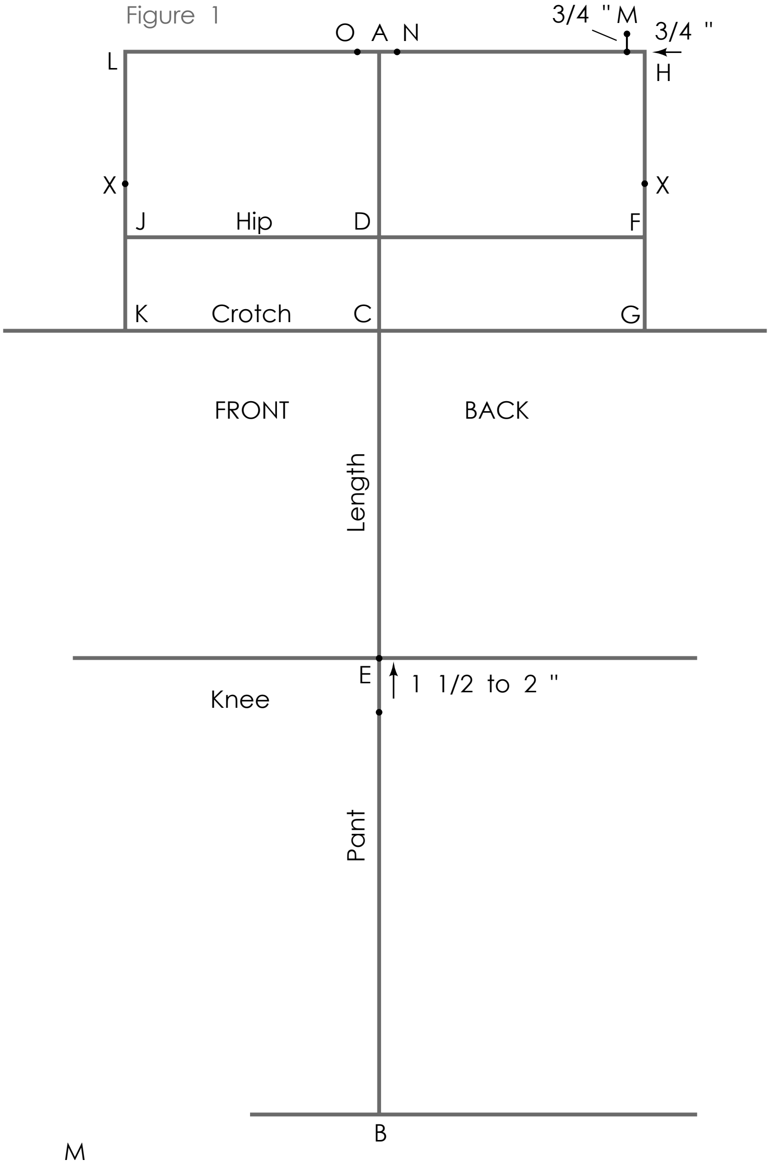
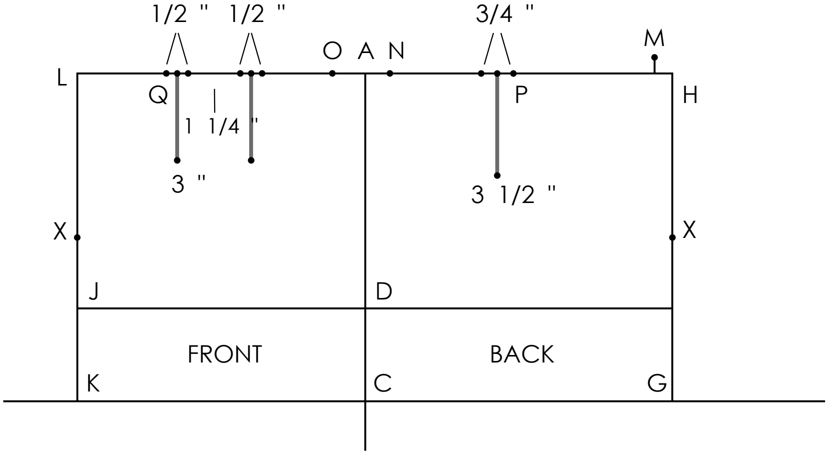

O A N
3/4 " M
3/4 "
L
H
X
X
J
Hip
D
F
K
Crotch
C
G
FRONT
BACK
Length
E
1 1/2 to 2 "
Knee
Pant
B

Figure 2


1/2 "
1/2 "
O A N
3/4 "
M
L
Q
1 1/4 "
P
H
3 "
3 1/2 "
X
X
J
D
FRONT
BACK
K
C
G

Mark Dart Legs and Intake

Figure 2

H–P = One-half of M–N, plus 1/2". Mark dart intake; square down 3 1/2" from center.

L–Q = One-third of L–O. Mark dart Q, space 1 1/4" and mark second dart. Square down 3" from centers.

Figure 3

- Mark 1/4" below L, or for *personal fit C.F. waist depth*. Re-mark L.
- Draw curve waistline from L to O.
- Draw curve waistline from M to N.

Completing Dart Legs

Draw dart legs to new waistline. Equalize dart legs by extending shorter leg to match longer leg.

G–R = One-half of G–C.
K–S = One-fourth of K–C.
G–T = 1/3" on diagonal line.
Draw curve, blending at X.
K–U = 1/3" on diagonal line.
Draw curve, blending at X.
R–V = One-half of R–C less 1/8".
S–W = One-half of S–C less 1/8".

Figure 3

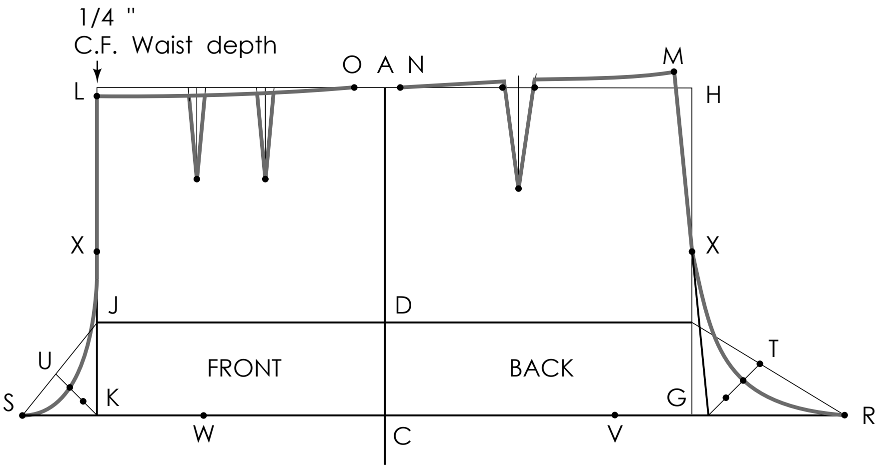
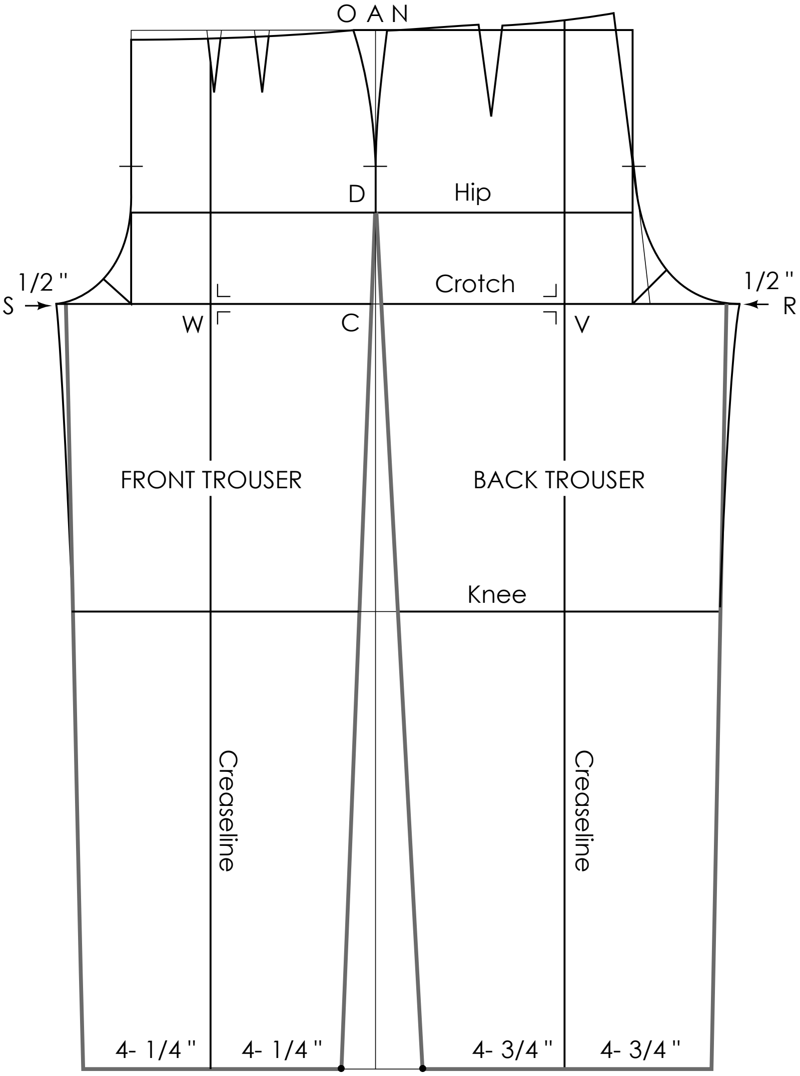

1/4 "
C.F. Waist depth
O A N
M
L
H
X
X
J
D
U
FRONT
BACK
T
S
K
G
R
W
C
V

Figure 4

- Square lines from V and W through length of the pant (creaseline).
- *Back:* Draw hip curve from N to D.
- *Front:* Draw hip curve from O to D.
- *Leg line:* The back hem is generally 1 inch greater than the front hem. Follow suggested hem measurements. Make adjustments in the fitting.
- Mark 1/2" in from S and R and draw lines to hem marks.
- *Inseam:* Draw curve line from knee to S and R.
- *Outseam:* Draw leg lines from each hem mark, blending with D. Mark.
- *Make waist band; see Figure 8. This completes the Classic foundation.*
- Separate trouser and trace for the pleated design patterns. See next page.

Figure 4

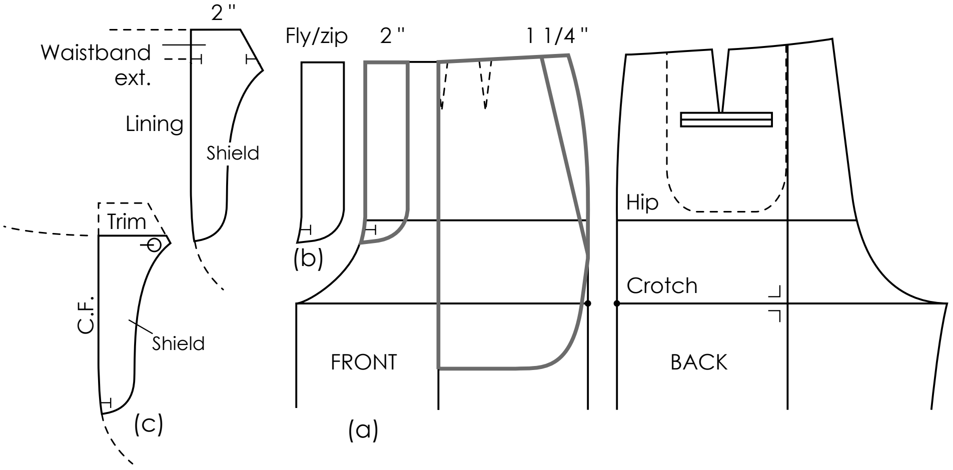

O A N
D
Hip
1/2 "
Crotch
1/2 "
S
R
W
C
V
FRONT TROUSER
BACK TROUSER
Knee
Creaseline
Creaseline
4- 1/4 "
4- 1/4 "
4- 3/4 "
4- 3/4 "

Trouser Draft

Figures 5a, b, c

- Trace the upper patterns (a).
- Draw side pocket 1 1/4" to past hip. Draw fly and trace (b).
- Draw shield; extend to width of the waist band and out 3" at waist level. Trace two copies: one for lining, trim the other for self-fabric. Use trim tip for belt extension (c).
- Place interlining on fly, and shield.

Figure 5

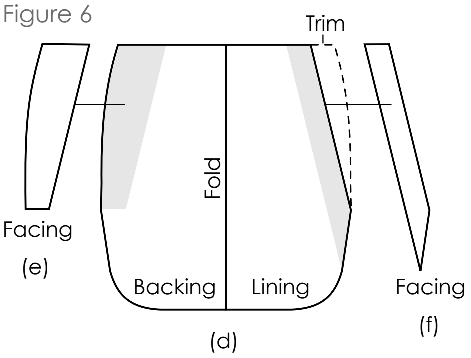

2"
Waistband ext.
Lining
Shield
Trim
C.F.
Shield
(c)
Fly/zip
2"
1 1/4"
(b)
Hip
Crotch
FRONT
BACK
(a)

Figures 6d, e, f

Pockets

- Trace pocket pouch on fold (d) and draw overlay patterns (e, f). Cut in self fabric, and stitch flat to lining.
- *Welt pocket:* Draw welt pocket. See Special Information for All Pants section later in this chapter for instruction.
- *Belt loops.*

Figure 6


Trim
Fold
Facing
(e)
Backing
Lining
(d)
Facing
(f)

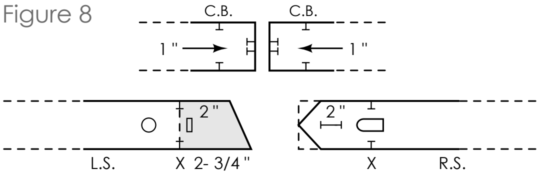
Figures 7a, b

- *The first pleat* begins on creaseline, regardless of location of the dart.
- Slash/spread, or pivot 1 1/2" from hem.
- *Second pleat:* Combine waist darts (a).
- Fold first pleat to zero at hem. Fold second pleat to knee and trace/wheel across folds. Unfold, pencil-mark, and blend hemline.
- Add seams and 1" for fold-back hem. Walk seams; see special information for all pants section, Figure 2, later in this chapter for guide. Trim pocket at entry; see broken lines.

Waist Band

Figure 8

Figure 8


C.B.
C.B.
1"
1"
2"
2"
L.S.
X 2- 3/4"
X
R.S.

- *Length:* one-half waist.
- *Width:* 1 1/2". X is center front.
- *Right side:* Extend 2" from X. Draw point; mark buttonhole.
- *Back side:* mark for metal hook.
- *Left side:* Shield is 2" from X, following lining shape. Mark metal hook and button place.
- *Back:* Add 1" to center back, allowing for waist modification. Interline waist band. Buckram and curtain can be purchased at tailor supply stores.

Figure 7a

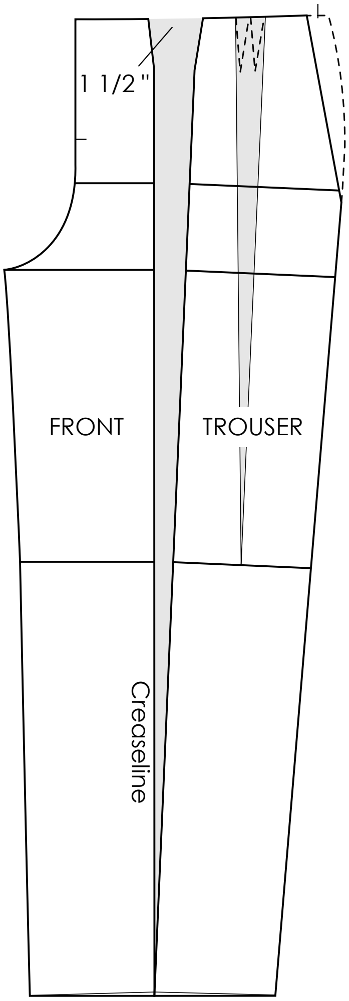
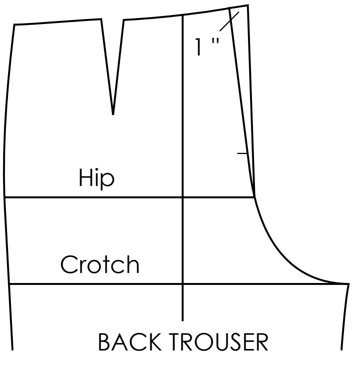

Trim
1 1/2"
FRONT
TROUSER
Creaseline

Figure 7b


1"
Hip
Crotch
BACK TROUSER

SLACK FOUNDATION

Trace the basic pant foundation and modify as illustrated. The slack fits closer than the basic pant foundation by the shortening of back crotch point. It is a flexible pant that can be designed with pleats (includes the relax fitted jean), or without front waist pleats as a casual or dress pant. The pant can be of any length, the hemline may be narrower or wider than the suggested measurements for style variations. Side pockets of any style can be drafted for the foundation. See the trouser pocket on previous page.

The waist band can be folded or cut in two parts. Test fit the foundation before designing from the pattern.

Slack Draft

Blue-lined areas indicate changes. Bold lines are original patterns; broken lines and shaded areas are cut away.

Figures 1a, b

Front

- Measure 1/2" in at center front and up 1/4".
- Draw line to hip level and a curved line ending 1/4" up from crotch point.
- Mark 1/2" at side waist, and blend to hip. Trim excess.
- Use hem measurements and draw lines from hem to knee and a curved line to crotch point.
- Draw fly and trace. Draw shield on fold (a).

Back

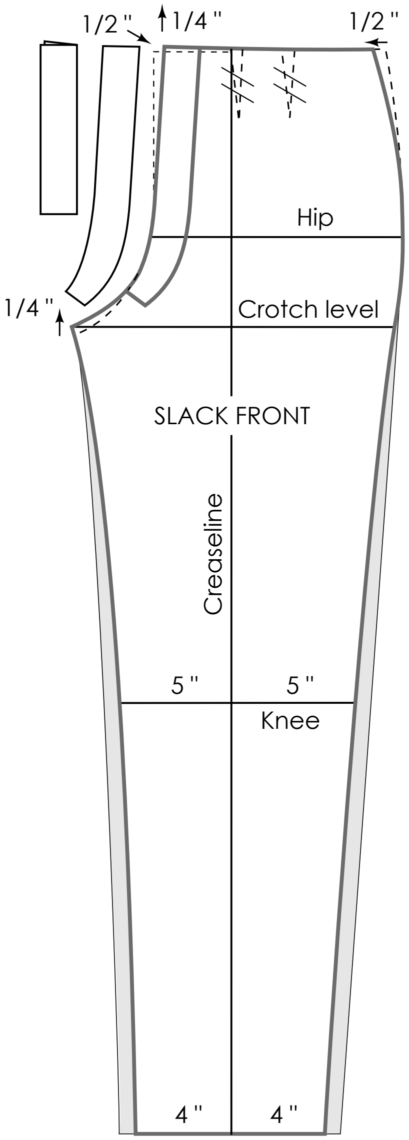
- Reduce inseam 3/4".
- Raise crotch level 1/4".
- Mark back welt and far pocket.

  See Welt section earlier in this chapter for construction.
- Shift creaseline 3/8".

  Draw new creaseline through length of the pattern.
- Draw crotch curve to blend with hip.
- Mark hem measurements and draw lines from hem to knee. Add a curved line to crotch point (b).

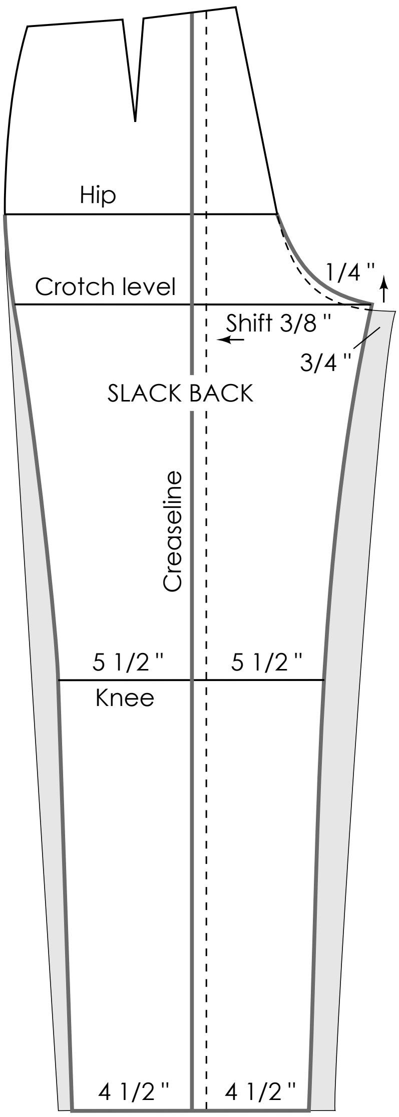
Add seams and 1 inch fold-back hem. Cut for test fit. Walk seams; see Special Information for All Pants section, Figure 2, later in this chapter, for guide.

Figure 1a



(a)

Figure 1b



(b)

JEAN FOUNDATION

The jean foundation is drafted to the natural waist and modified for waist depth variations. Retail pants are labeled with measurements for the natural waist, even though the actual pant waist is 2 to 3 inches more.

Side waists may overlap in the draft; see Figure 2 in Special Information for All Pants section later in this chapter, for guide. The jean pant can be drafted with a *relaxed fit* or a *contour* fit. Both pants will be noted in the instructions. Sample draft waist size is 34.

Record the measurements in spaces provided.

Figure 1

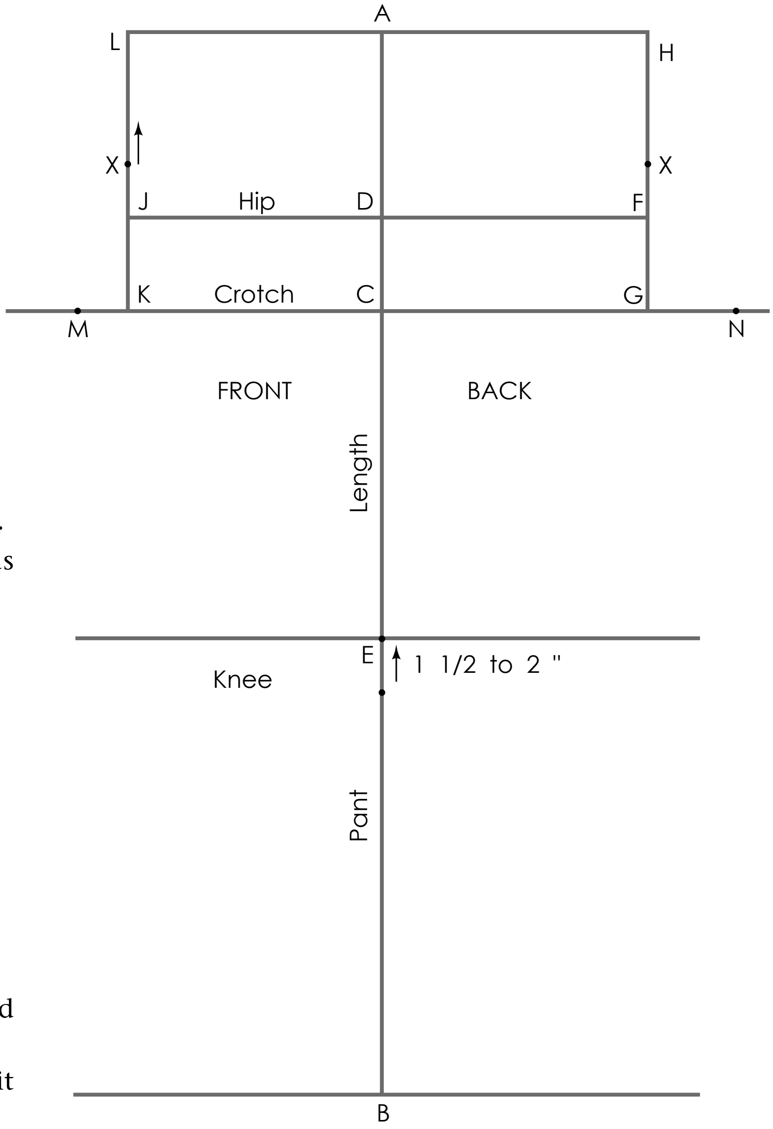


Figure 1

A–B = **Pant length** ________.

A–C = **Crotch depth**, plus 1/4" ________.

C–D = **Hip depth:** One-third of C–A ________.

C–E = **Knee depth:** One-half of C–B, minus 1 1/2" ________

Square out both sides of A, D, C, E, B.

D–F = **Back hip arc**, plus 1/4" ________.

C–G and A–H = D–F. Connect G to H.

G–X = Half of G–H.

D–J = **Front hip arc**, plus 1/4" ________.

C–K and A–L = D–J. Connect K to L.

K–X = Half of K–L, plus 1/2".

Crotch Extension Points

K–M = 2" add 1/8" for each size over 34, and subtract 1/8" for each size under 34.

G–N = One-third of C–G, less 1/2" for regular fit or add 3/4" for a relaxed fit.

Figure 2

H–O = Mark 1 3/8" in and up 1 3/8".

Draw line from O to X to crotch level.

Draw crotch curve from N and blend to X.

O–P = **Back Waist arc**, plus 3/4" ______.

(Point P may pass A, as illustrated.)

Mark center at waist line. Mark 1/2" dart, 3" long and parallel with O line.

L–Q = Mark 1/4" down (*or use CF waist depth*) and mark in 5/8". Draw line from Q to X to crotch level.

Draw crotch curve; blend to X.

Q–R = **Front Waist arc** plus 1/4" ease _______. If R meets or overlaps the P mark, continue *front* draft in colored pencil. See example two pages ahead, Figure 1.

Figure 3

- Mark 3/8" out from each side of C. For hip mark.

  M–S = half of M to hip mark. Mark S.

  N–T = half of N to hip mark. Mark T.

  Square in both directions from S and T (center creaseline).
- Draw curve from P to D to hip mark and continue curve beyond.
- Draw curve from R to D to hip mark and continue curve beyond.

Leg line: Pencil-slim leg lines are a popular choice; consider first the hem opening (ease of entry) and knee, plus 1" for bending. Adjust when fitting the pant. Other popular leg variations are the boot and the flare pant styles. The pant can be of any length.

To walk the pant legs, see two pages ahead, Figure 2.

Suggested hem measurements can be modified.

The jean pant foundation is finished when cut and separated. See two pages ahead, Figure 3, for possible back crotch length adjustment when fitted.

Figure 2

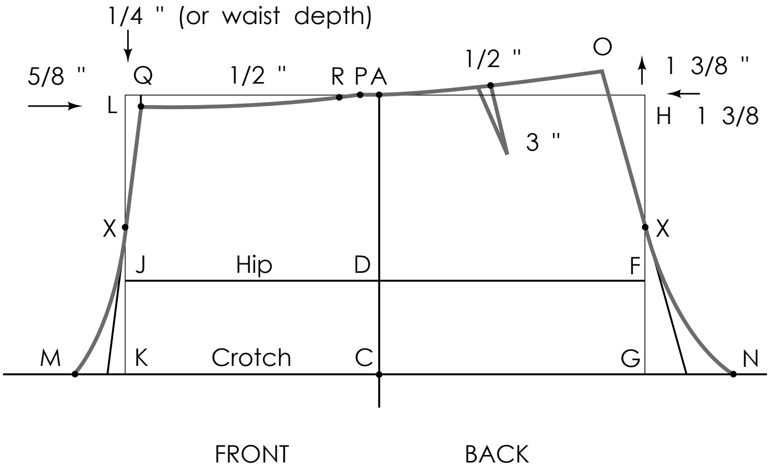
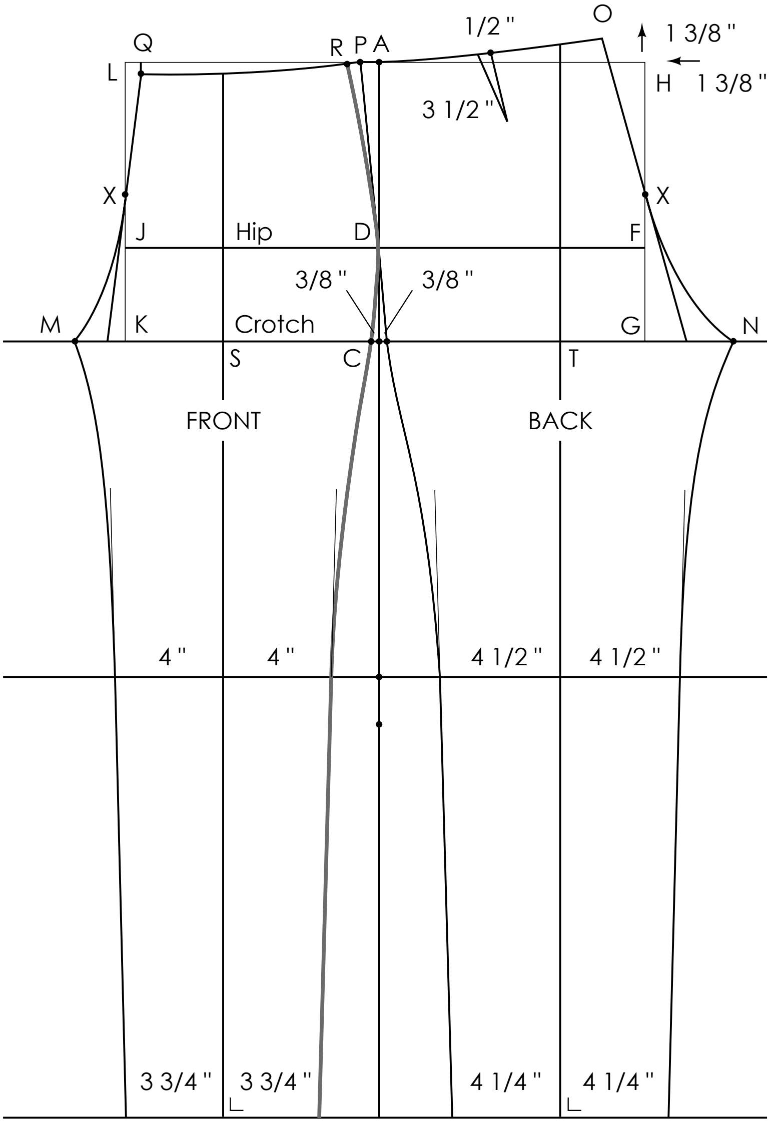

1/4 " (or waist depth)
5/8 "
Q
1/2 "
R P A
1/2 "
O
1 3/8 "
L
H
1 3/8 "
3 "
X
X
J
Hip
D
F
M
K
Crotch
C
G
N
FRONT
BACK

Figure 3


Q
R P A
1/2 "
O
1 3/8 "
L
H
1 3/8 "
3 1/2 "
X
X
J
Hip
D
F
3/8 "
3/8 "
M
K
Crotch
G
N
S
C
T
FRONT
BACK
4 "
4 "
4 1/2 "
4 1/2 "
3 3/4 "
3 3/4 "
4 1/4 "
4 1/4 "

Waistline, Waist Band, Fly, and Shield

Figure 4

The waist band can be set upward or downward from the waist. A lower waist (broken lines) is drawn parallel with the waistline and does not include waist band.

- Waist band: Measure waist depth line, plus 1" extension. The width is 1 1/2" (on fold 3"), plus seams. Draft the waist band.
- Draw and trace fly and shield (on fold).

Figure 4

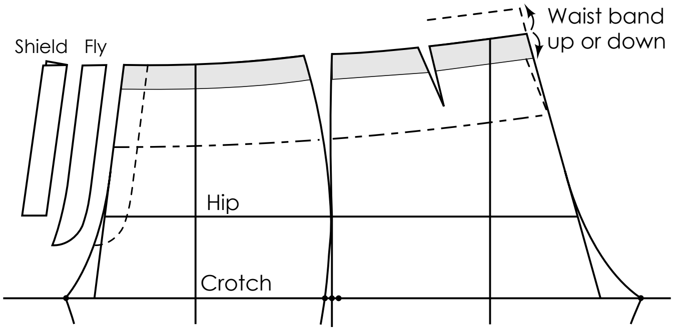

Waist band
up or down
Shield
Fly
Hip
Crotch

Figure 5

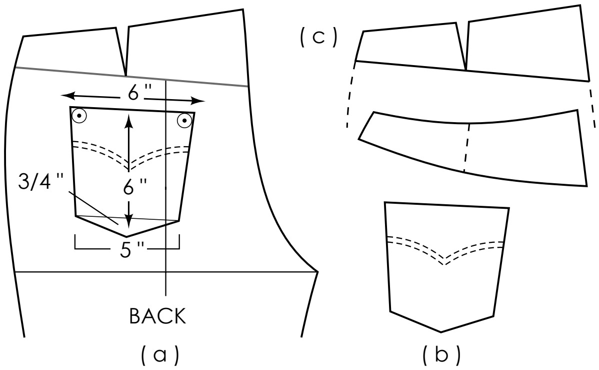

(c)
6"
6"
3/4"
5"
BACK
(a)
(b)

Figure 6

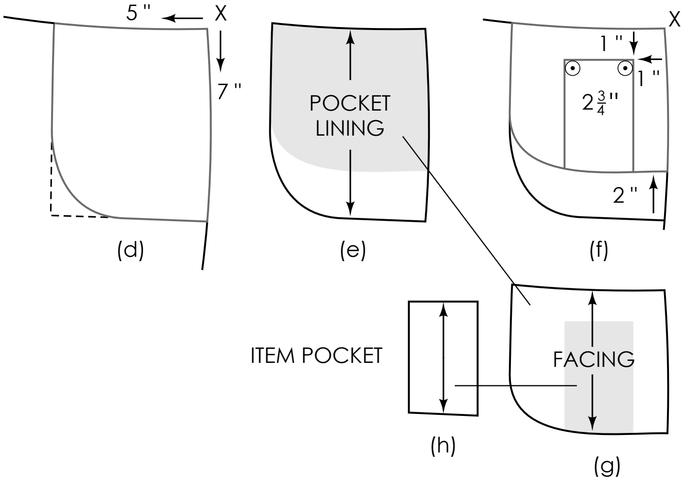
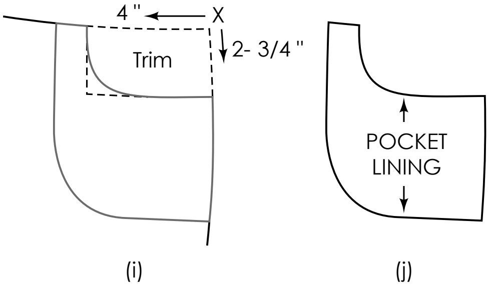

5"
X
7"
POCKET LINING
X
1"
1"
$2\frac{3}{4}$"
2"
(d)
(e)
(f)
ITEM POCKET
FACING
(h)
(g)

Figure 7


4"
X
2- 3/4"
Trim
POCKET LINING
(i)
(j)

Back Pocket and Yoke

Figures 5a, b, c

- Use measurements to draw pocket (a). Trace pocket (b). Draw yoke using measurements.
- Trace yoke and close dart (c).

Front Pocket Backing—Lining Pattern

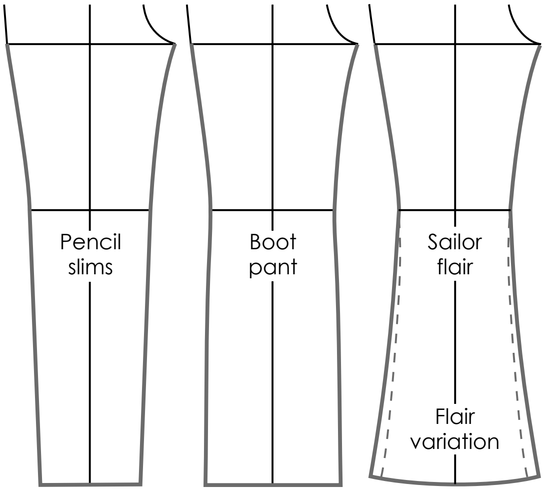
Figures 6d, e, f, g, h

- Draw front pocket (d). Trace for lining pattern (e).
- Plot the backing, facing, and item pocket using measurements given (f).
- Trace patterns for facing (g), facing (g), and item pocket (h).

Figures 7i, j

- Draw pocket entry, using measurements given.
- Trim the pocket entry from the jean pattern, and trace the lining pattern.

Pant leg line variation


Pencil
slims
Boot
pant
Sailor
flair
Flair
variation

SPECIAL INFORMATION FOR ALL PANTS

Pants foundations are identified by three basic types of fit at crotch level: loose, moderately loose, and contoured, all of which are controlled by a percentage of the hip measurement. The following information applies to the pant foundations and designs.

Pattern Side Waist Overlap

Figure 1

Overlapping occurs when waist measurement passes center draft line. Front or back pant side seam is drawn in blue for clarity. Hip curve may bypass D and go to hip mark beyond.

Walking the Seams

Figure 2

Walking begins at hem line, to pattern’s end. Read instructions for corrections. The back is shortened and is stretched in the sewing.

Figure 2

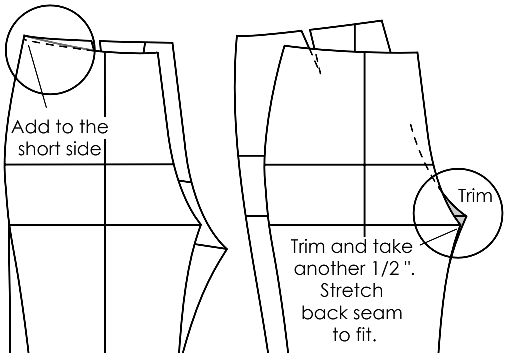
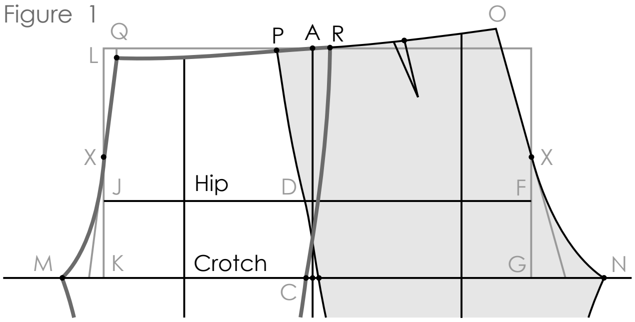

Add to the short side
Trim
Trim and take another 1/2 ". Stretch back seam to fit.

Figure 1

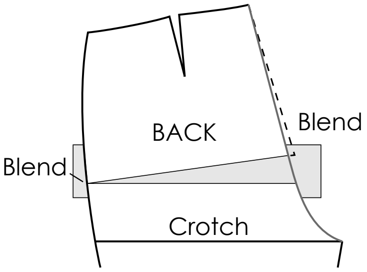

Q
P
A
R
O
L
X
J
Hip
D
F
X
M
K
Crotch
G
N
C

Increasing Center Back Seam

Figure 3

In the test fit, if model has difficulty bending, or the pant falls too low in back, measure amount needed and slash/spread to increase length.

Figure 3

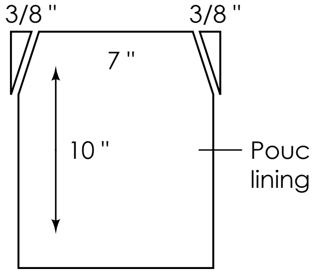

BACK
Blend
Blend
Crotch

Pant Welt Pocket—Practice Welt

Figures 1a, b, c

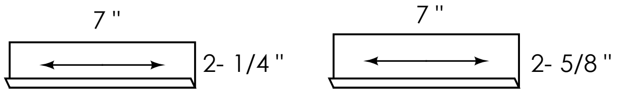
- Draft pocket pouch lining, facing, and piping using the measurements as shown.
- Cut in fabric: Two linings, one self-facing, and piping. Interface piping. Fold bottoms 1/4", or overlock.

Figure 1a


3/8 "
3/8 "
7 "
10 "
Pouch lining

(a)

Figure 1b



Self- piping
(b)

Self- facing
(c)

Figure 2

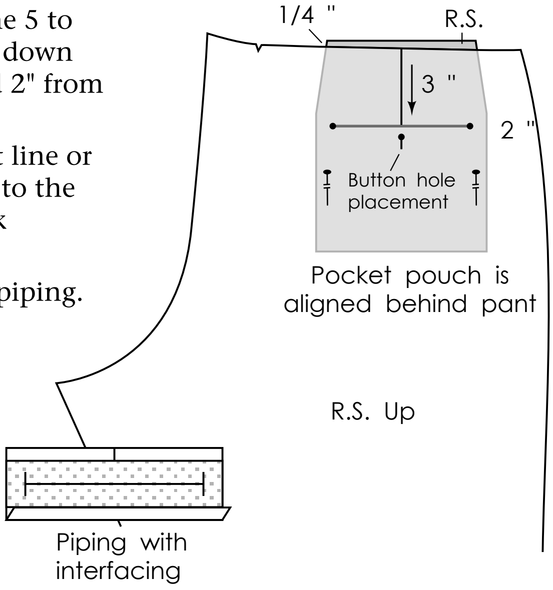
Pant

1. Mark a welt line 5 to 5-1/2" long, 3" down from waist and 2" from the side.

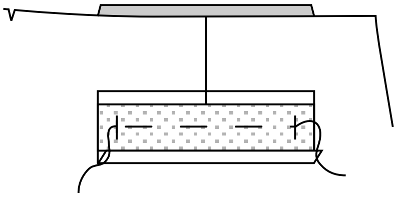
   Mark a straight line or follow parallel to the waistline. Mark each end.

   Mark weltline piping.

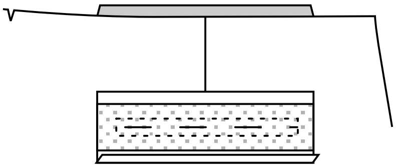
Figure 2


1/4 "
R.S.
3 "
2 "
Button hole placement
Pocket pouch is aligned behind pant
R.S. Up
Piping with interfacing

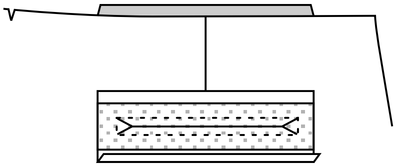
1. Draw welt line on wrong side of piping and baste. Center piping strip, matching welt line underneath, and baste through pant and lining.



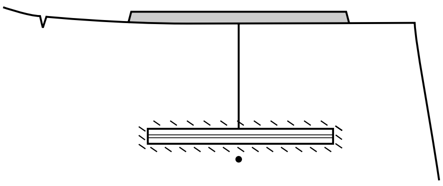
2. Stitch 1/8"all sides of the rectangle; stop needle at the corners and turn fabric for a sharp turn. Use 16" stitch per inch.



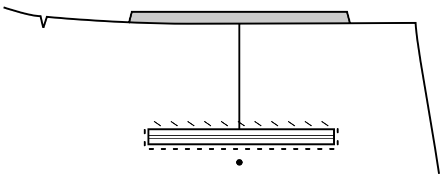
3. Cut through center of the stitch line, and cut 3/8" prongs at corners.



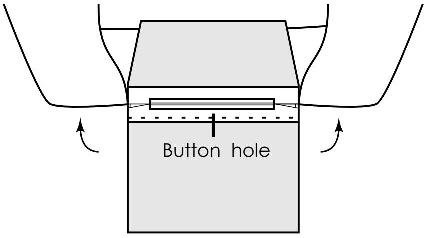
4. Pull though the piping to the back side. Make sure corners are squared. Use your fingers to help fold fabric over seams to create a thin piping. Baste around the welt. Press.



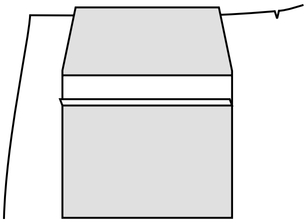
5. Stitch in the ditch at sides and bottom, or stitch close to the fold.



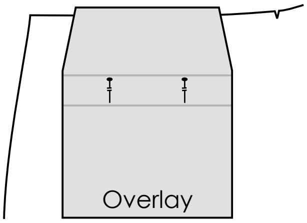
6. With wrong side up, move pant leg upward. Stitch folded edge of the piping to the lining. Put in the vertical buttonhole.



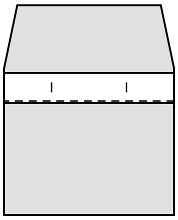
7. Place the *facing* right side down and centered on top of the welt opening.



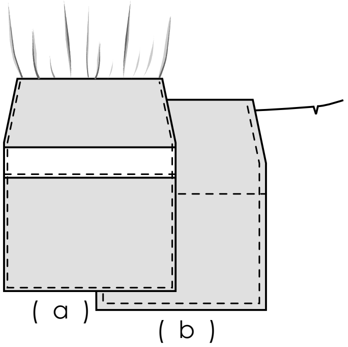
8. Place second lining on top, matching edges and pin, catching the facing.



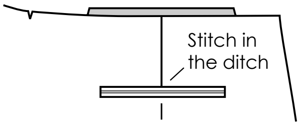
9. Remove second lining, with facing pinned to it; turn over and stitch across facing fold.



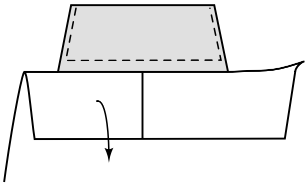
10. Move pant leg upward. Join the two linings together (inside out) and stitch 1/8" around the pouch lining (a). Pull pocket pouch to the R.S., press, and top-stitch 1/4" (b).



11. Turn pant over and stitch in the ditch to secure piping.



12. Fold pant waist over and stitch across lining pouch 5/8" above to catch the piping fabric.



FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

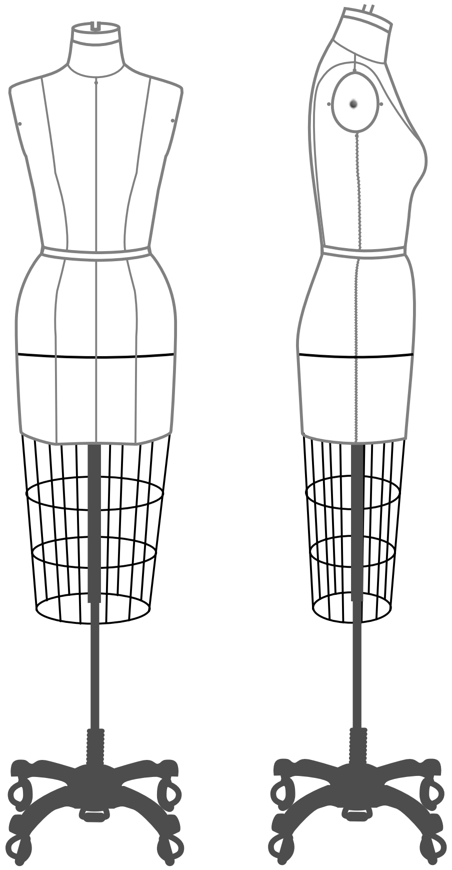
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____
2. Waist: _____
3. Abdomen: _____
4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
   B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
    Front = 1" (2 darts 1/2 to 5/8")
    Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle ____ floor ____
28. Crotch length ____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____

B. Bust/back/chest relationship:
Bust _____ Back _____

C. Hip types: _____

D. Arm types: _____

E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____

F. Shoulder type _____

G. Shoulder/hip relationship:
Shoulder _____ Hip _____

H. Leg types _____

I. Leg types _____

J. Figure stance: _____

K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____

L. Tilting waistline. Record high and low.
Front: _____ Back: _____

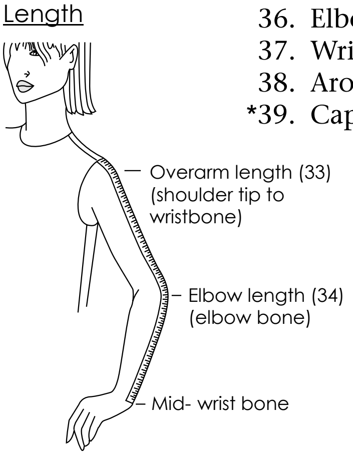
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____

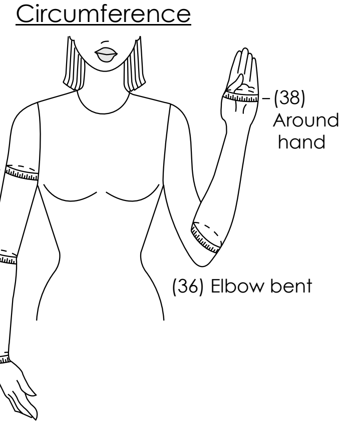
N. Other variations: _____

Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____

*39. Cap height _____


Length
Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone


Circumference
(35) Biceps
(36) Elbow straight
(37) Wrist
(38) Around hand
(36) Elbow bent

*Measuring the Arm

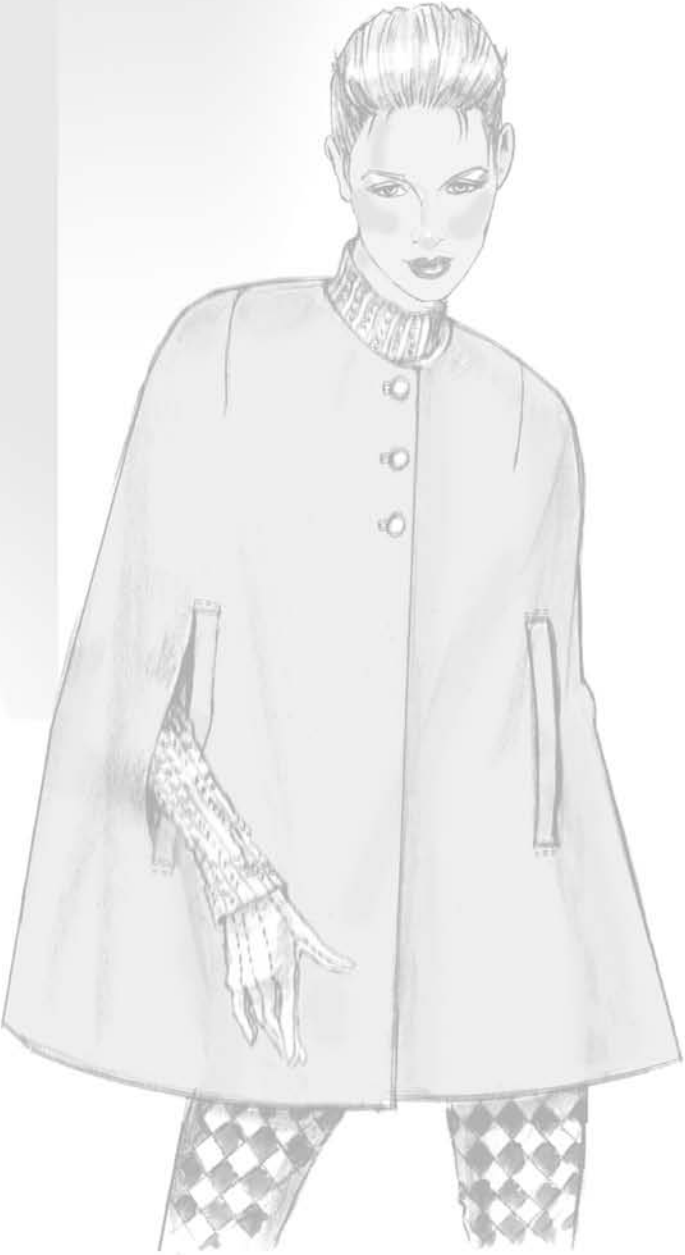
Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

This page intentionally left blank

Capes and Hoods

From Chapter 24 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

Capes and Hoods



CAPES

- A-Line Cape Foundation
- Flared Cape Foundation

HOODS

- How to Measure for the Hood Draft
- Contoured Hood Foundation
- Contoured Hood Design
- Loose Hood Foundation

CAPES

A cape is a sleeveless garment that hangs over the shoulders (sometimes with slip-throughs for arms). It can be worn separately over coats, jackets, dresses, or sportswear, or it can be attached to a dress or cloak. Two basic capes are developed from the torso foundation—A-line and circular capes. They can be used to generate many variations of current fashion trends.

A-Line Cape Foundation

Design Analysis

Cape has A-line silhouette with slits for arm entry. Three buttons secure the front. Design 1 illustrates how this foundation can be used.

Design 1

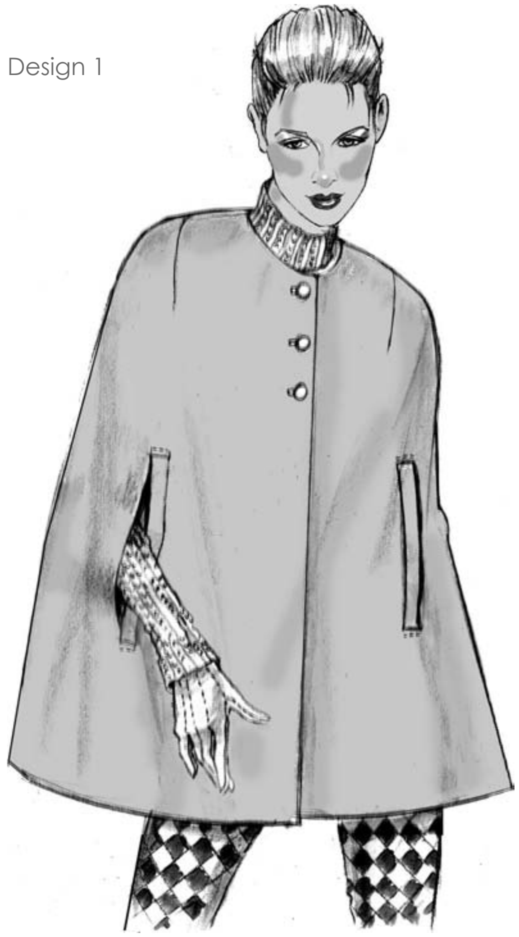
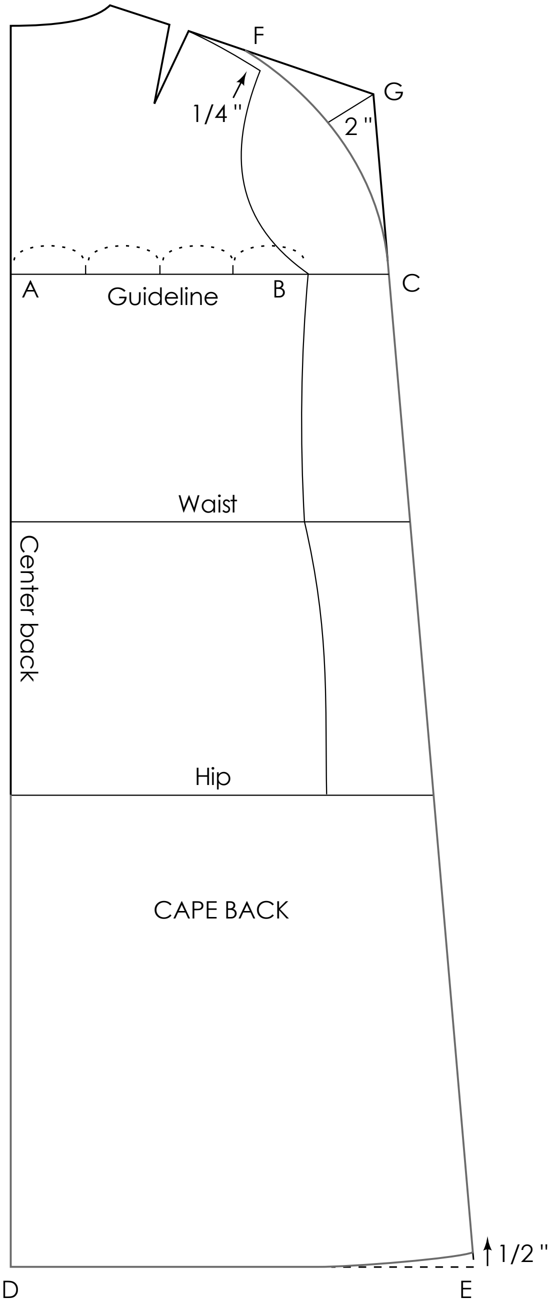


Figure 1



Pattern Plot and Manipulations

Figure 1 Back

- Trace the back torso.
- Square a guideline from the center back, touching the armhole. Label A and B. Divide the A–B line into fourths.

  B–C = One-fourth of A–B. Extend line.
- Extend center back to the length desired. Label D.

  D–E = A–C plus 3 inches, squared from D.
- Draw a line from E. Extend the line through C.
- Blend hem 1/2 inch up at side seam.
- Mark 1/4 inch above shoulder tip. Label F.
- Extend line from mid-shoulder through F, intersecting the E–C line. Label G.
- Draw a 2-inch diagonal line from G and draw the shoulder curve from C to F to mid-shoulder.
- Cut the pattern from paper.

Figure 2 Front

- Trace the front torso, transferring side dart to mid-shoulder in line with the back dart placement.
- Square a line from the center front, touching the armhole. Label H.

  H–I = B–C of back cape.
- Add length to center front below hip equal to the back. Label J.

  J–K = D–E of back cape, squared from J. Connect K with I (curve shaped later).
- Blend the hemline 1/2 inch up from the side seam.
- Draw a 1-inch extension parallel with the center front.

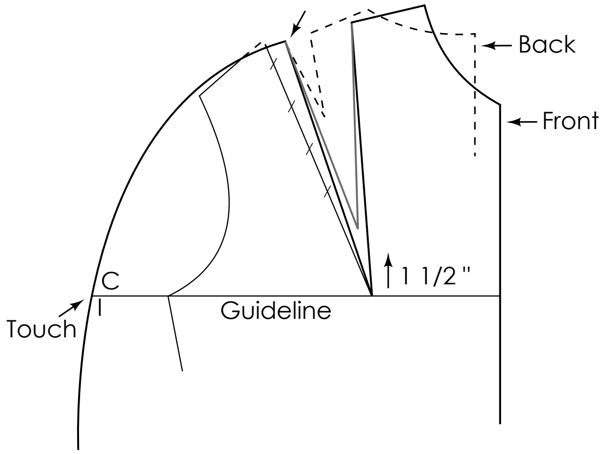
Figure 3

- Place back cape on top of the front cape, matching guidelines with C and I touching (back indicated by broken line).
- Trace curve of the back cape, ending at the *back* shoulder dart leg (will cross the front dart leg). Mark. Remove pattern. (If the back shoulder is higher or lower than front, balance the difference at the shoulder tip and blend curve line.)

Note: Shoulder pads do not require shoulder adjustment. (Excess has already been transferred to the armhole area.)

- Center the dart point 1 1/2 inches up from bust point and draw adjusted dart legs to dart point.
- Complete the pattern for a test fit. (Shoulder overarm curve will be adjusted on the model.)

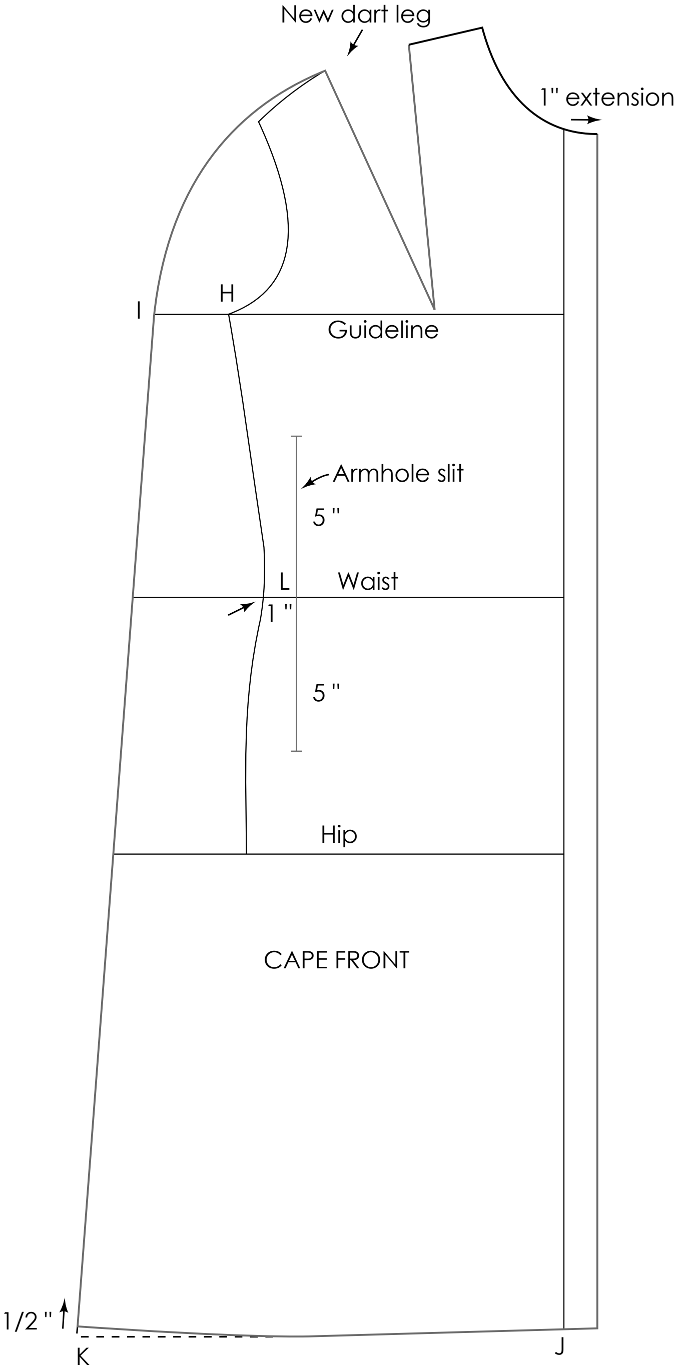
Figure 3



Armhole Slit

- Mark 1 inch in from the side waist. Label L. Square 5 inches up and down from L. (Placement and length can vary.) The slit should be cut 1/16 inch wide and notched across top and bottom.
- Cut a welt strip 10 inches × 3 inches (not illustrated). *Note:* The slit is faced with the lining.

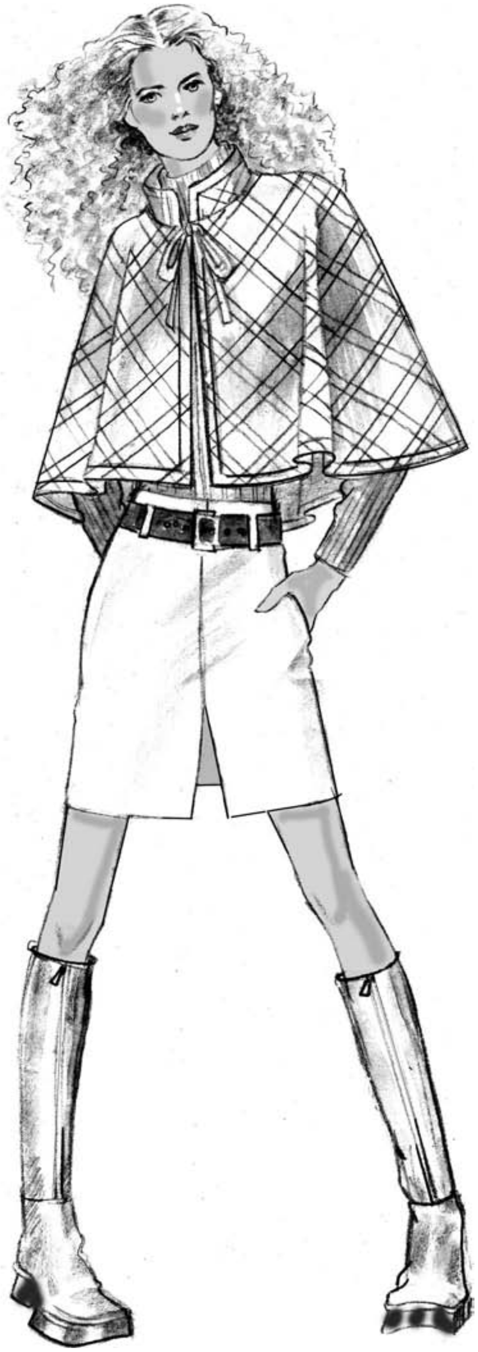
Figure 2



Flared Cape Foundation

Design Analysis

This flared cape has a tied neck and turned-up Peter Pan flat roll (collar and tie not included). Develop the flared cape foundation from the front and back torso. Length is added for design variations. Create designs using the slash/spread method.



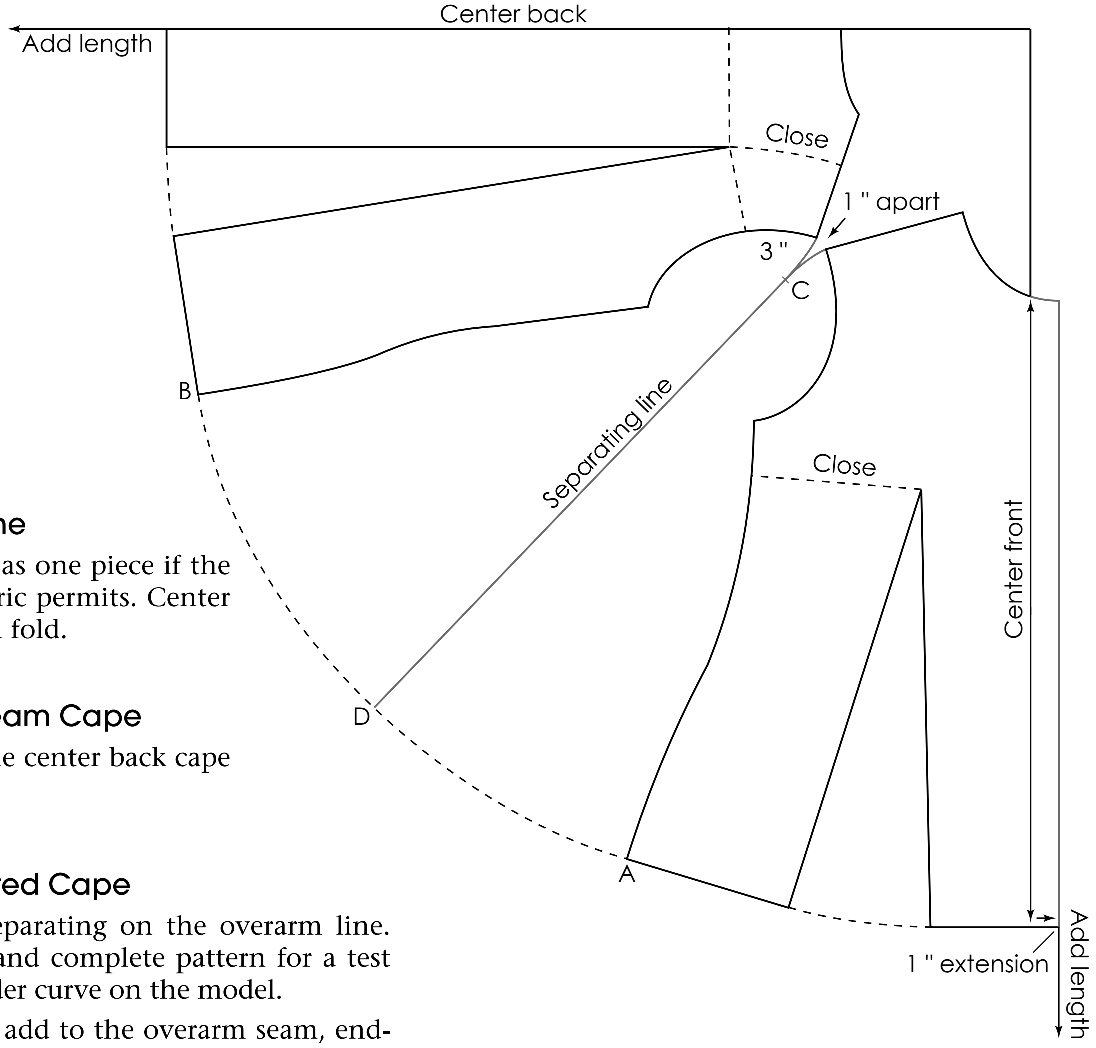
The Flared Cape Draft

Figure 1

Trace the front and back patterns, transferring shoulder and side darts to hip level, and cut from paper.

- Square a line on paper. Place the back and front on a square line, with shoulder tips 1 inch apart and trace. Label side hips A and B.
- Mark the center between shoulder tips and points A and B. Draw separating line. Label D.
- Mark C 3 inches down on the line from shoulder tips.
- Draw a curved shoulder from C to the front and back mid-shoulders.
- Mark a notch at the shoulder tips.
- Shape the hemline between front and back patterns.
- Extend the hemline to desired length. The new hemline is parallel with hip level.
- Draw a 1-inch extension at center front for button and buttonholes, if desired.

Figure 1


Center back
Add length
Close
1 " apart
3 "
C
B
Separating line
Close
Center front
D
A
1 " extension
Add length

Option 1: All-in-One

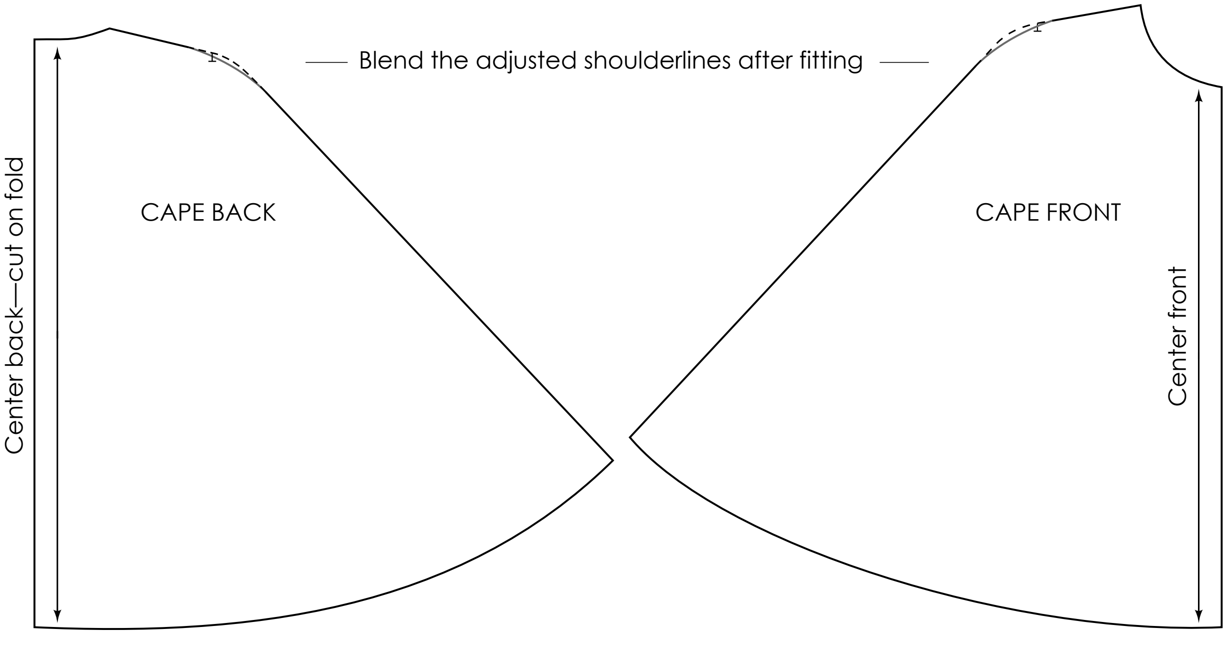
- Cape can be cut as one piece if the width of the fabric permits. Center back is placed on fold.

Option 2: Back Seam Cape

- Add a seam at the center back cape (not illustrated).

Option 3: Separated Cape

- Cut the cape, separating on the overarm line. Draw the grain and complete pattern for a test fit. Adjust shoulder curve on the model.
- For greater flare, add to the overarm seam, ending at shoulder tip.


Blend the adjusted shoulderlines after fitting
CAPE BACK
Center back—cut on fold
CAPE FRONT
Center front

HOODS

Hoods cover the head and sometimes part of the face. They can be worn separately or as part of a garment. Like all garments, hoods come in a variety of styles and shapes.

Two hood foundations are illustrated—the contour hood and loose-fitting hood. Other variations can be developed from the two foundations. Hoods that are illustrated are attached to the garments. The front and back neckline of the patterns are needed for the draft.

How to Measure for the Hood Draft

Figure 1 Overhead Measurement

- Place a measuring tape at the center front neck (between clavicles) and hold end of the tape while measuring up and over the head.
- Record one-third of this measurement and add 3/4 inch: _________.

Figure 1

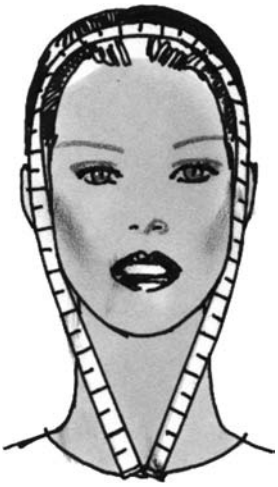
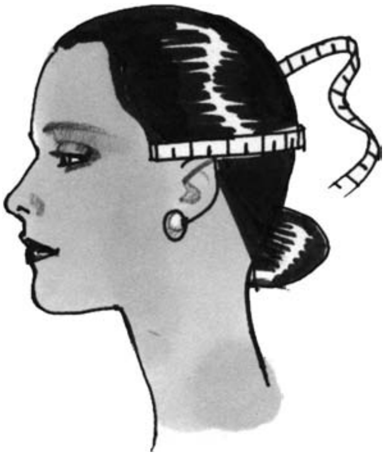


Figure 2 Horizontal Measurement

- Place tape at the hairline at eye level and measure to other side. Record one-half of measurement: _________.

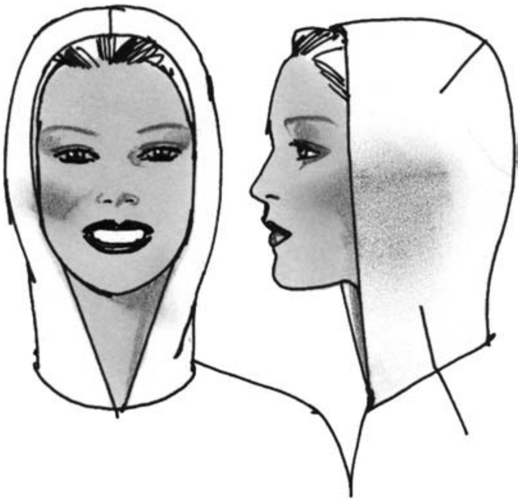
Figure 2



Contoured Hood Foundation

Design Analysis

The contoured hood fits the shape of the head, with control darts at the crown and neck area. The hood is attached to the neckline of the garment, starting at the center front.



Pattern Plot and Manipulation

Figure 1

A–B = overhead measurement (example: 10 inches).

B–C = A–B, less 1 inch. Square from B.

C–D = 1 1/2 inches. Square from C.

A–E = one-half of A–B. Mark.

E–F = 3/4 inch, squared from E.

F–G = horizontal measurement squared from E (example: 8 inches).

B–H = 1 inch. Mark.

B–I = one-half of B–C. Mark.

Figure 1

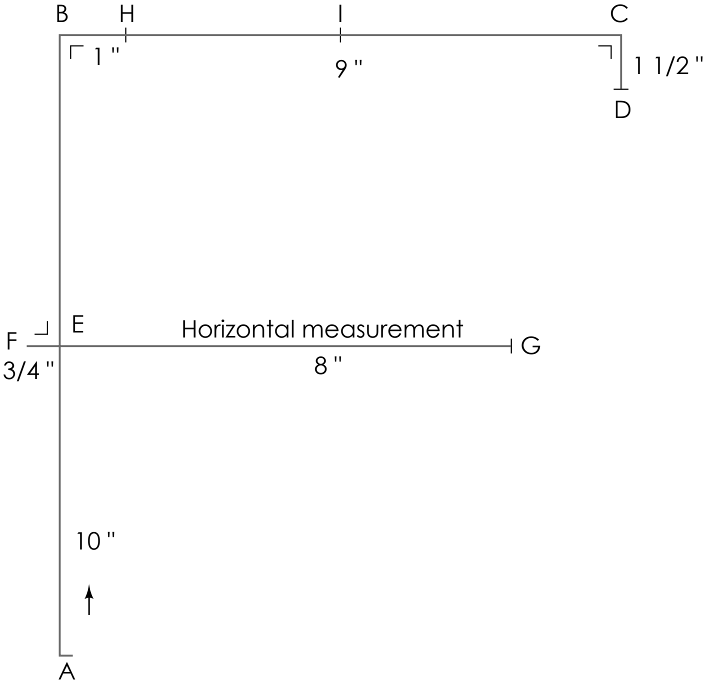

B
H
I
C
1 "
9 "
1 1/2 "
D
F
E
Horizontal measurement
G
3/4 "
8 "
10 "
A

Figure 2

- Place back pattern on the draft, with center back on A–B line and neck at A.
- Trace back neck to corner of the shoulder. Label J.
- Shift the pattern 3/4 inch, with center back parallel to the A–B line.
- Trace shoulderline from the corner of neck to dart leg. Label K. (Broken lines indicate the untraced pattern.)
- Remove the pattern.

Figure 2

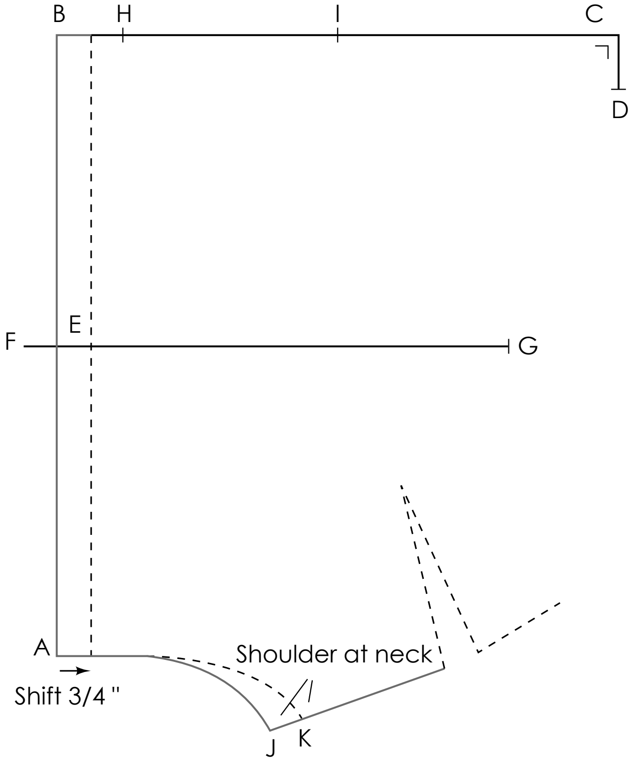

B
H
I
C
D
E
F
G
A
Shift 3/4 "
Shoulder at neck
J
K

Figure 3

- Extend the shoulder (for guideline).
- Place shoulder of the front pattern on guideline, with corner of the neck touching point K.
- Trace the front neck. Label center front neck X. (Broken lines represent the untraced pattern.)
- Remove the pattern.

  K–L = 3 inches. Mark.

  L–M = 3/8 inch. Mark and draw a line from H to M.

  H–N = 3/4 inch. Mark.
- Square out 1 1/8 inches from both sides of N. Label O and P.
- N–Q = One-third of H–M. Mark and connect Q with O and P.

Figure 3

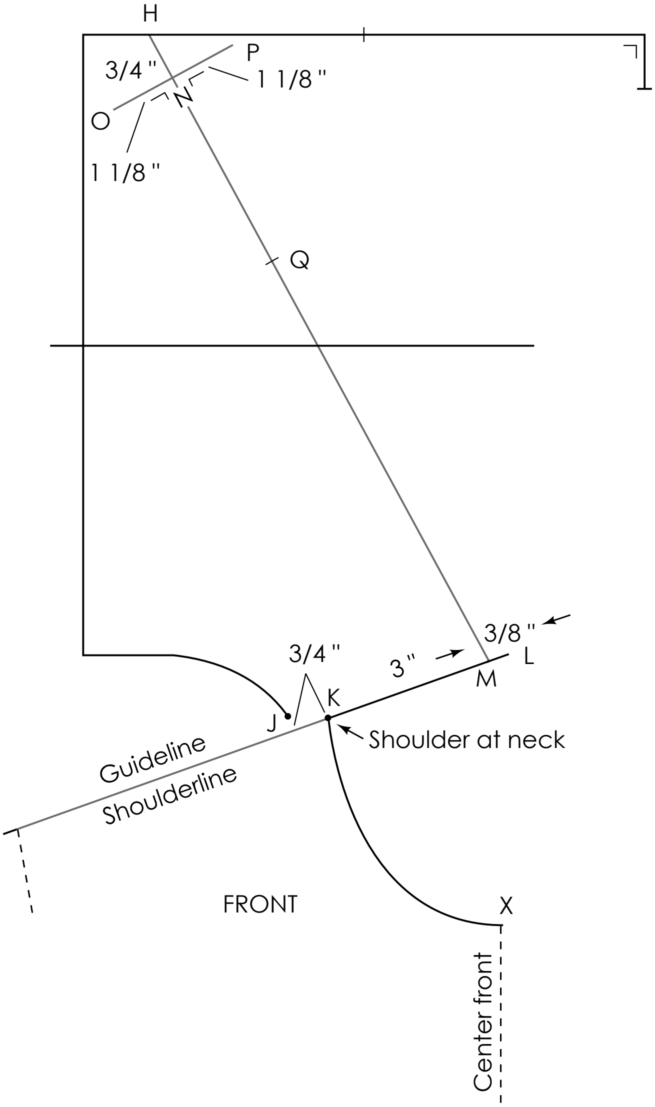

H
3/4 "
P
1 1/8 "
N
O
1 1/8 "
Q
3/8 "
3/4 "
3 "
L
M
J
K
Shoulder at neck
Guideline
Shoulderline
FRONT
X
Center front

Figure 4 Shaping the Hood

- Draw the outward curved line of the hood, connecting points A, F, O, and P, I, D.
- Draw an inward curve from D, G, L, to X. Blend at point G, for a continuous inward curve, if necessary.

Neck Dart

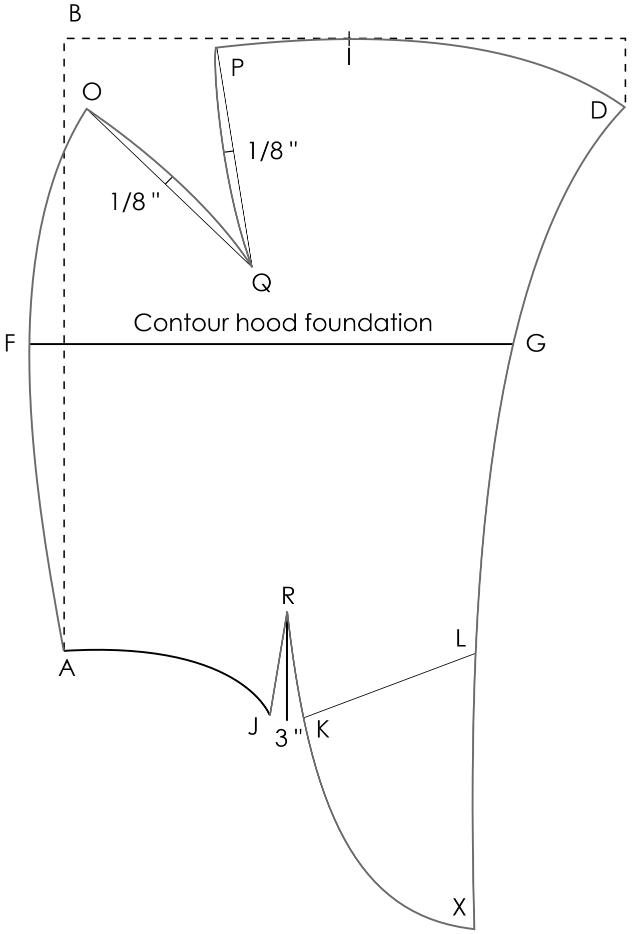
- Mark center between points J and K. Draw a 3-inch line parallel to the A–B line. Label R.
- Connect J and K with R for the dart.

Crown Dart

- Mark mid-point of O–Q and Q–P and measure out 1/8 inch. Mark and draw curved lines connecting points Q with O and P.
- Draw a grainline parallel to the A–B line. Complete the pattern for a test fit.

Note: Fold the neck dart with excess in direction of the A–B line.

Figure 4


B
P
I
O
D
1/8 "
1/8 "
Q
Contour hood foundation
F
G
R
L
A
J
3 "
K
X

Dartless Hood

Figures 5a, b, c

- Draw a line through the dart to K and blend.
- Trim 3/8 inch from the front and back necklines, as illustrated. Walk the necklines. Adjust the shoulders if necessary.

Figure 5a

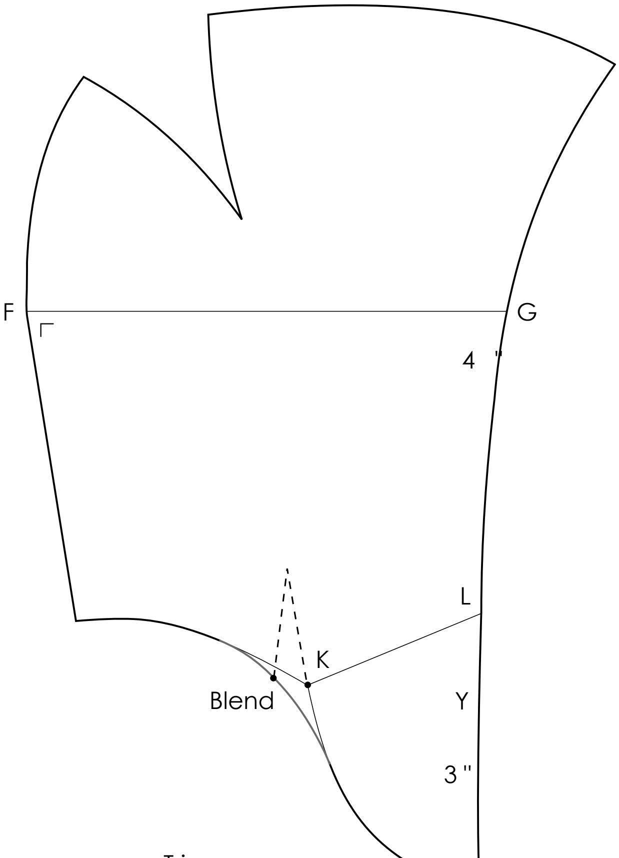

F
G
4 "
L
K
Blend
Y
3 "

Figure 5b

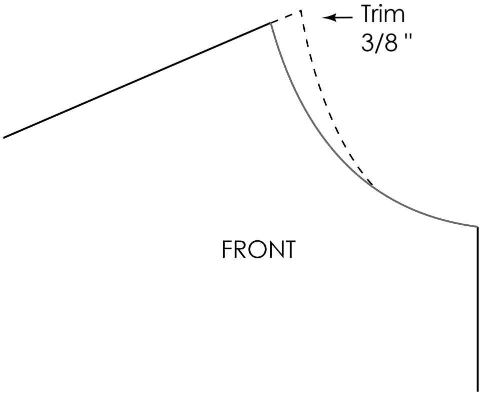
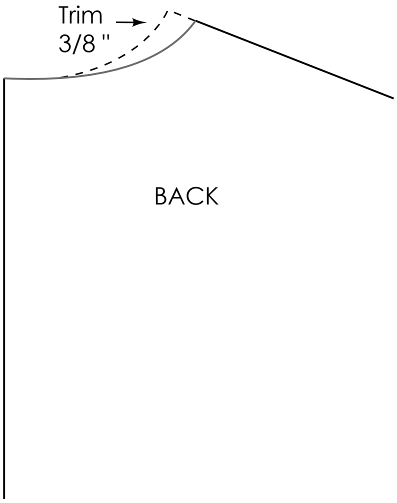

Trim
3/8 "
FRONT

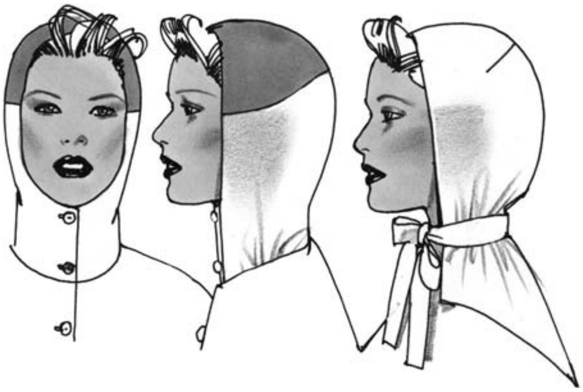
Figure 5c


Trim
3/8 "
BACK

Contoured Hood Design

Design Analysis

The contoured hood encircles the face, buttoning from the chin down to the center front of the neck and garment. The hood gathers along the neckline, and the styleline ends at the side of the face. If gathers are not desired, do not add to the center back and use the dart of the foundation pattern. Design 2 is included for practice.



Design 1 Design 2

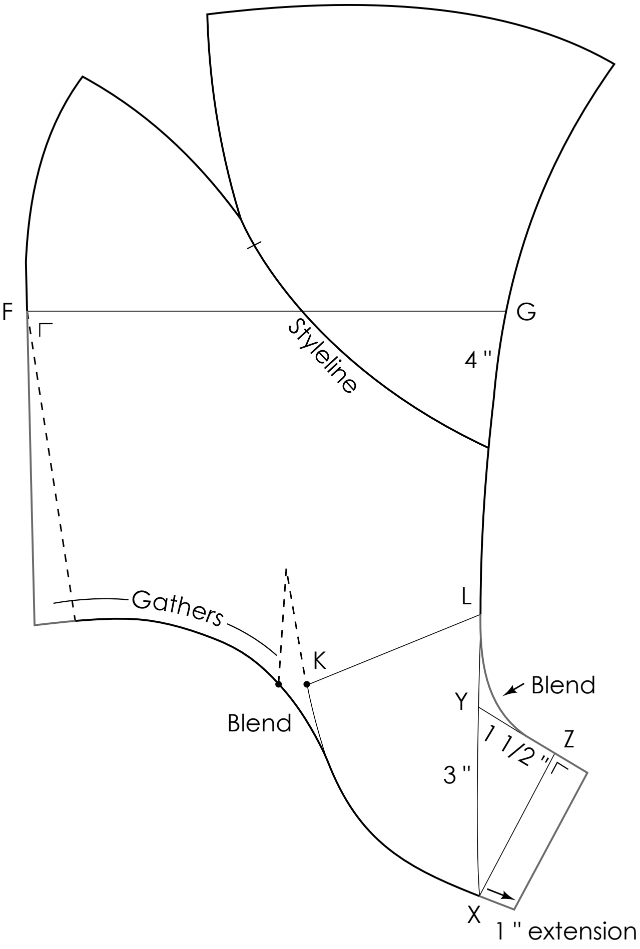
Figure 1

- Trace the contour hood foundation, including F–G line and K–L line. (See the hood draft in the Hoods section earlier in this chapter.)
- Draw a styleline from dart point of the crown dart, ending 4 inches below the G line.
- Square down from point F (for fullness) and blend the neckline across dart (dart excess is part of the gathers). For the dartless hood, see two pages back, Figure 5.

Extension at Neck

- X–Y = 3 inches. Mark.
- Locate 1 1/2 inches on a square rule and place at point Y, with the other leg at point X. Draw a square line, touching X with Y. Label point Z. Blend from Z to L.
- Draw a 1-inch extension parallel with the X–Z line.
- Connect the ends.
- Mark button placement.

Figure 1

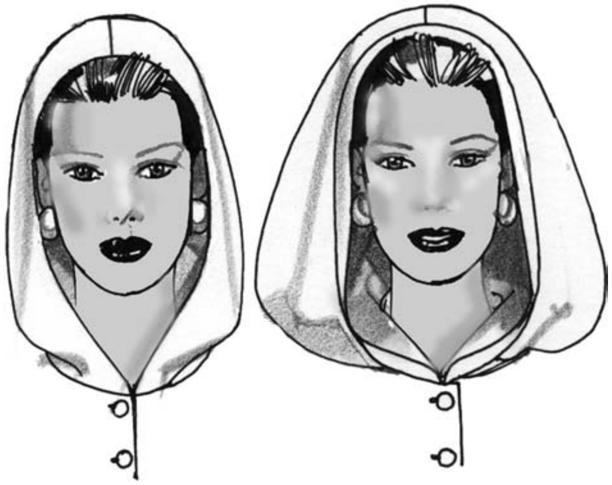


Loose Hood Foundation

Loose hoods are most often used with coats and capes. The hood may be pointed or squared in back, with the front hood folded over.

Design Analysis

The foundation is drafted with a fold-back and fits to the height of the crown of the head, with either a point or a square across the back (eliminating the point). Instructions are given for both Design 1 and Design 2 (exaggerated fullness).


Design 1 Design 2

Pattern Plot and Manipulation

For greater looseness, add 2 inches or more to the A–B measurement. See Design 2.

Figure 1

A–B = Overhead measurement (example: 10 inches).

B–C = 2 1/2 inches.

C–D = A–B, squared from C.

- Square down from D, as shown.
- Place center back on A–C line, with corner of the neck touching A.
- Draw neck to the corner of the shoulder. Label E.
- Shift the pattern 3/4 inch, keeping the center back parallel to the A–C line.
- Draw the shoulder, starting at corner of the neck (F), to the dart leg.
- Remove the pattern and extend shoulderline (guideline). (The broken line indicates the untraced pattern.)

Figure 1

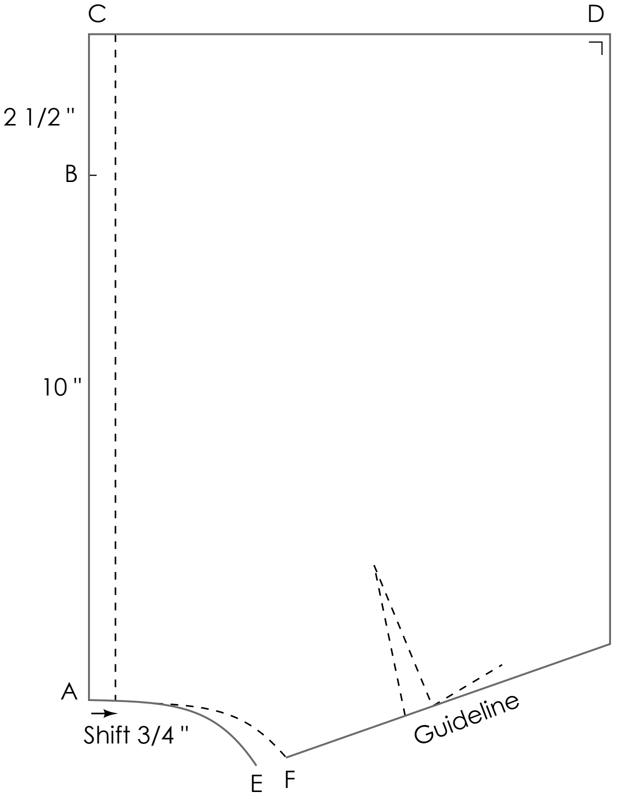


Figure 2

- Place front shoulder on the shoulder guideline, with corner of the neck touching point F.
- Dot mark center front neck (indicated by the broken line).
- With a push pin at point F of the front pattern, swing pattern 2 inches away from the dot mark.
- Trace the neckline. Remove the pattern and label center front H.
- Draw the curve of the hood from point H, blending with the shoulder guide.

Figure 3

- Mark center of the dart between E and F. Draw a 3-inch line parallel with the A–C line. Label I.
- Draw a connecting line from E and F to I (dart).
- To remove the point from hood, square out 2 1/2 inches from B. Label J.
- Square up from J to the C–D line.
- Cut the section from the pattern.

Note: The center back of the hood is cut on the fold.

- Draw the grainline and complete for a test fit.

Figure 2

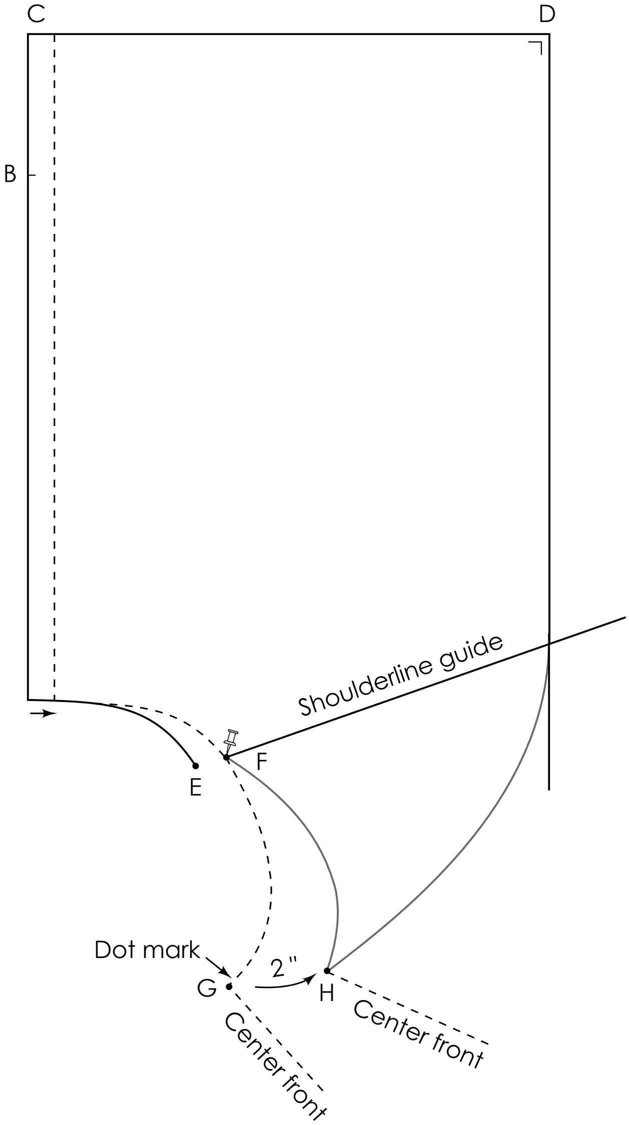
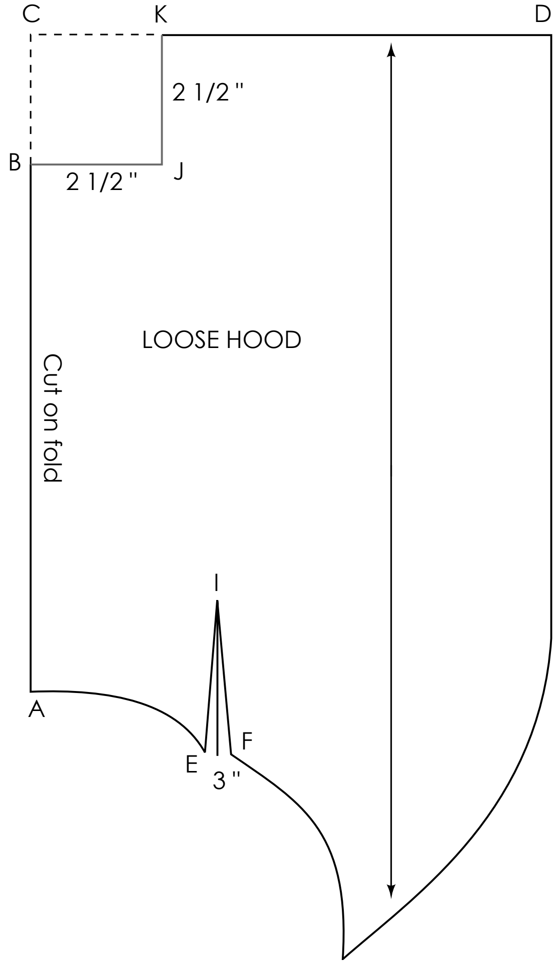

C
D
B
Shoulderline guide
F
E
Dot mark
G
2"
H
Center front
Center front

Figure 3


C
K
D
2 1/2"
B
J
2 1/2"
LOOSE HOOD
Cut on fold
I
A
E
F
3"

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

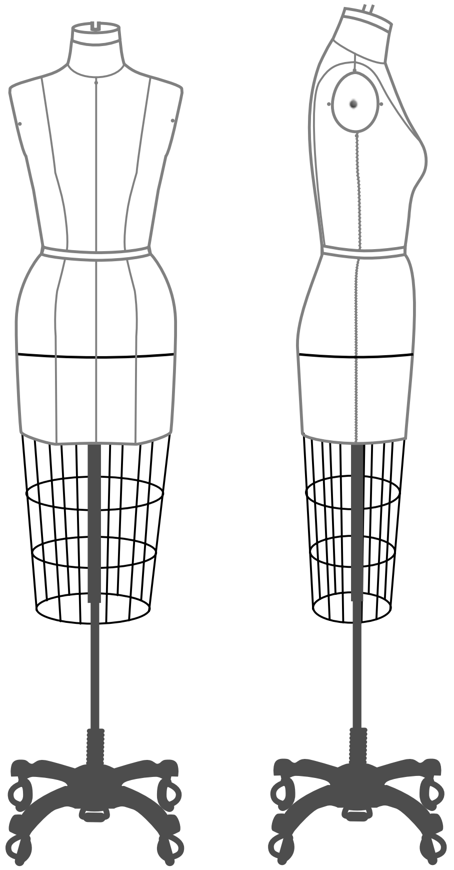
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

*Measuring the Arm

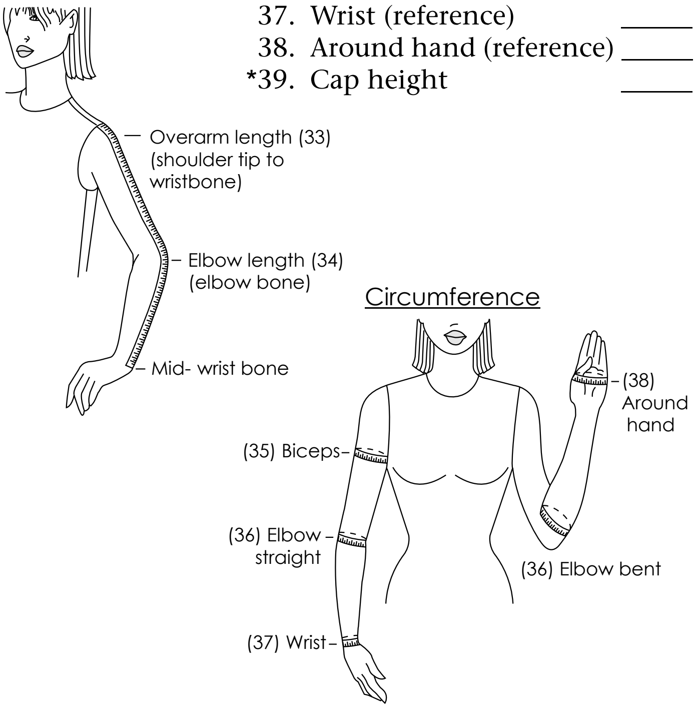
Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____


Length
Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone
Circumference
(35) Biceps
(36) Elbow straight
(37) Wrist
(38) Around hand
(36) Elbow bent

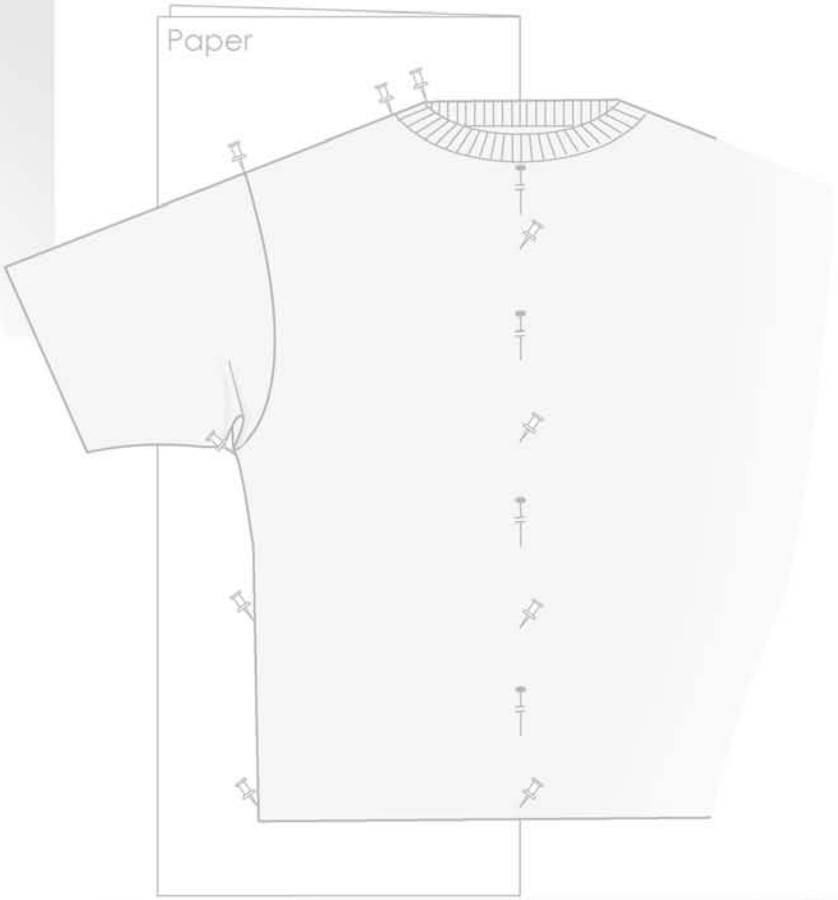
This page intentionally left blank

Knock-Off Copying Ready-Made Designs

From Chapter 25 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

Knock-Off Copying Ready-Made Designs

INTRODUCTION
KNOCK-OFF METHODS
T-TOPS
SHIRT TYPES
PANT TYPES
JACKET COPY



INTRODUCTION

Knock-off is a fashion industry word for copying ready-made garments. This is a common practice and generally happens when hot items hit the retail market. Other manufacturers want a piece of the action before the season ends or before sales cool down. Such items must be produced quickly. This is accomplished by applying a variety of short-cut methods to the patternmaking process.

KNOCK-OFF METHODS

- The garment is laid over paper and traced by pencil, pen, or a tracing wheel.
- Paper or muslin is placed over the garment and the design is rubbed off with tailor's chalk.
- Transparent plastic (dry cleaner's plastic bag cut apart or a firmer bag purchased from a hardware store) is placed over the garment and the design is copied with a marking pen.
- The garment is placed on the form and draped with muslin to its exact shape and design.
- Garments can be generated through measurements and following the grainlines of the design.
- The garment is taken apart and pressed, and the fabric patterns are traced.
- A computer can be used to copy designs.

Knowledge of the various methods for knocking-off garments is essential to the patternmaker. The following projects are guides for generating copies of designs with and without darts.

T-TOPS

Marking paper underneath is illustrated.

Figure 1

- Place pins at the center of the garment.
- Fold paper and square a line out from the fold.
- Place center of the garment on fold and the hemline on the squared line. Secure with push pins.
- Pencil the outline of the garment; trace the armhole and stitchline of the front and back necklines with a tracing wheel.
- True the lines and add seams to the copy.
- Cut the pattern from the paper along the back neckline. Trace a copy for the back pattern.
- Trim the front neckline of the original pattern.

Figure 2

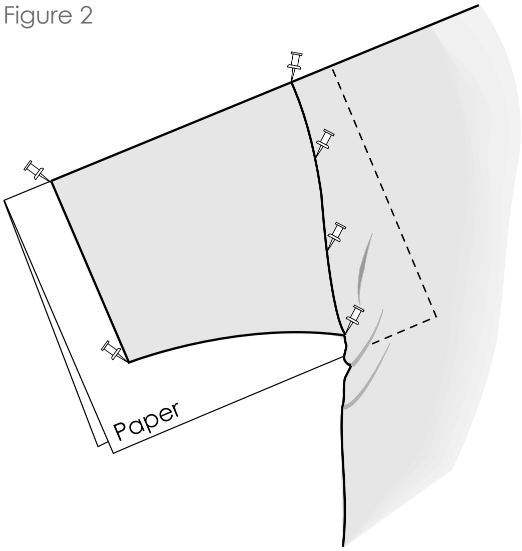


Figure 1

Measure ribbing length and width.
Length adjusted after stretching.
7.

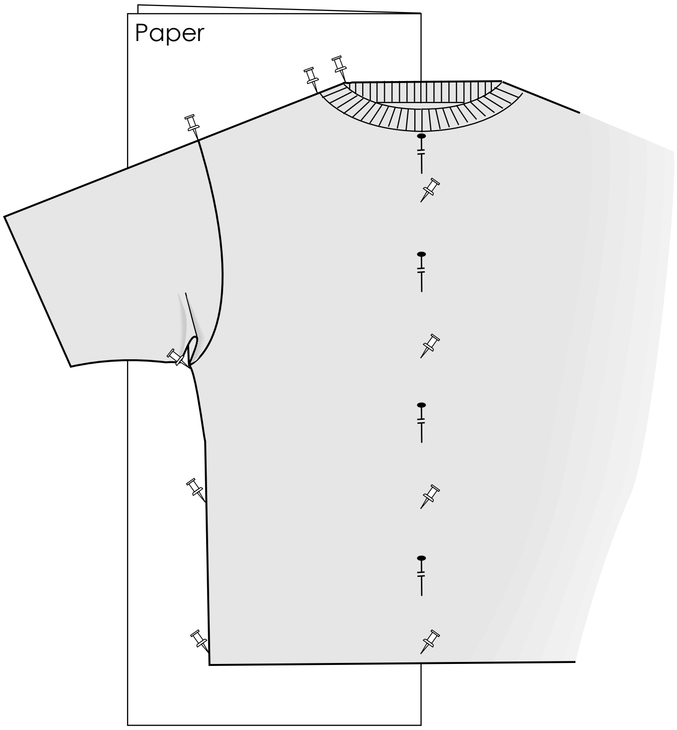


Figure 2

- Place center of the sleeve on fold of the paper. Smooth flat so the curve of the cap is visible. Pin.
- Pencil the outline and trace sleeve cap with a tracing wheel. Remove and true.

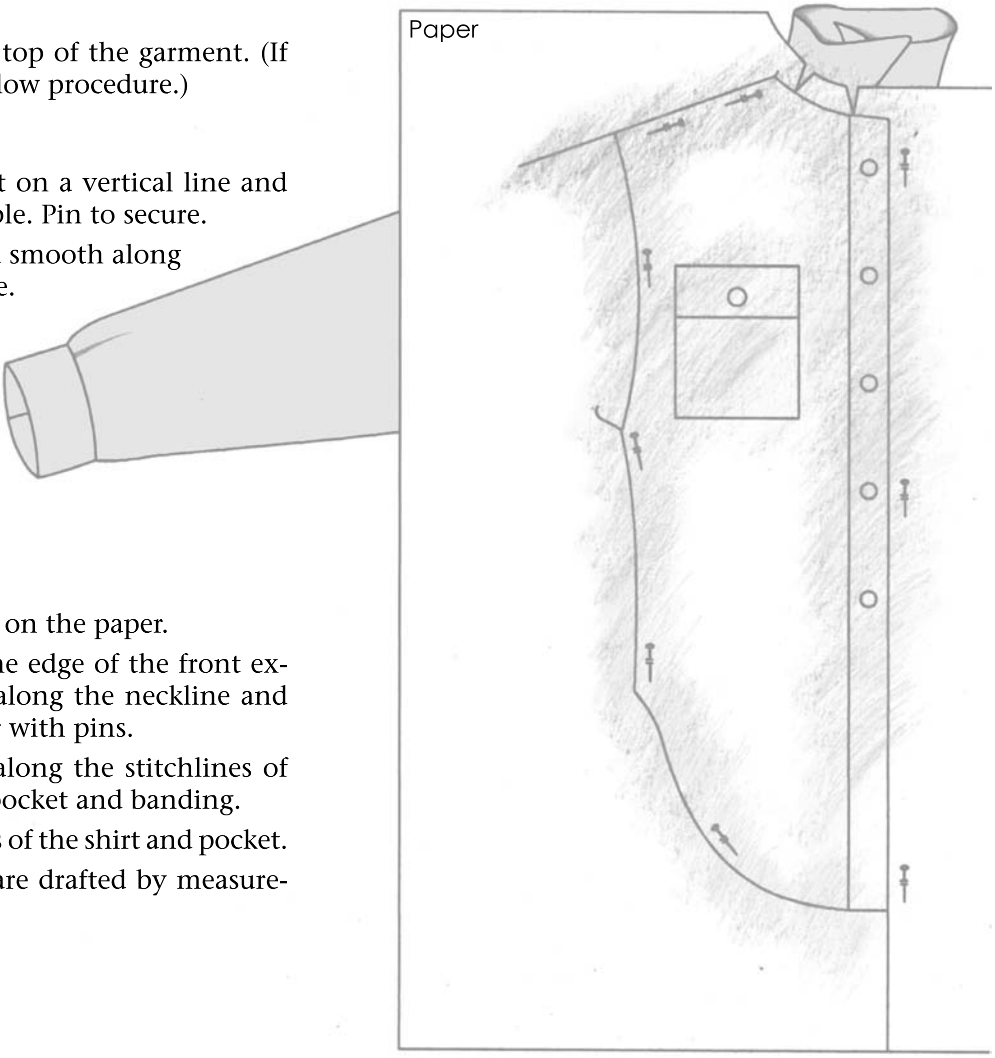
SHIRT TYPES

Marking paper is placed on top of the garment. (If muslin or plastic is used, follow procedure.)

Figure 1

- Lay the front of the shirt on a vertical line and parallel to the cutting table. Pin to secure.
- Smooth the shirt flat and smooth along the neckline and armhole.

Figure 1



Prepare Marking Paper

- Draw a vertical guideline on the paper.
- Place the guideline on the edge of the front extension. Slash and trim along the neckline and secure the marking paper with pins.
- With tailor's chalk, rub along the stitchlines of the shirt and across the pocket and banding.
- Remove and true the lines of the shirt and pocket.
- The pocket and placket are drafted by measurements.
- Mark button placements.

Figures 2a, b Collar and Stand

- Pin mark center back of the collar and stand.
- Place collar on paper and smooth flat. Pin to secure; then trace. Remove collar. Fold paper to complete the collar.
- Repeat the process for the collar stand.

Figure 2 a

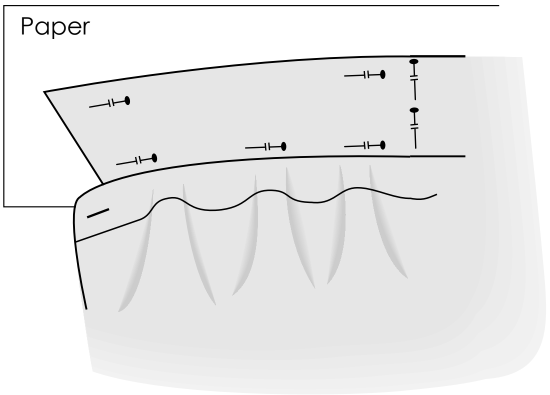


Figure 2b

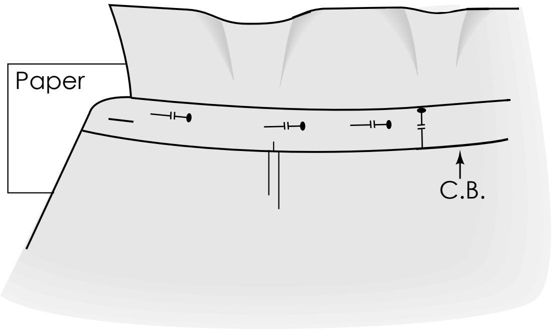


Figure 3
Measure the pleat intake and cuff.

- Slip the ruler into each pleat of the sleeve and double each measurement. Record for reference later.
- Measure the width and length of the cuff for the draft.

Figure 3

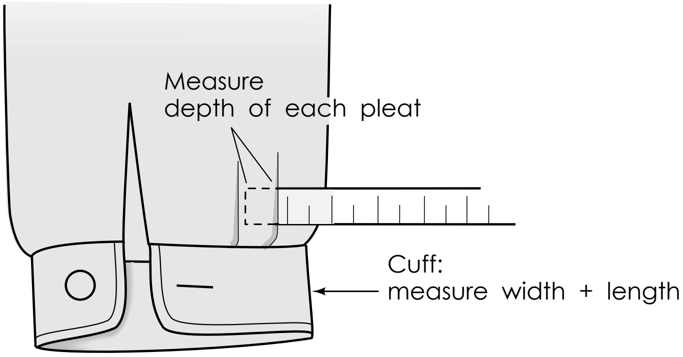

Measure depth of each pleat
Cuff: measure width + length

Figure 4

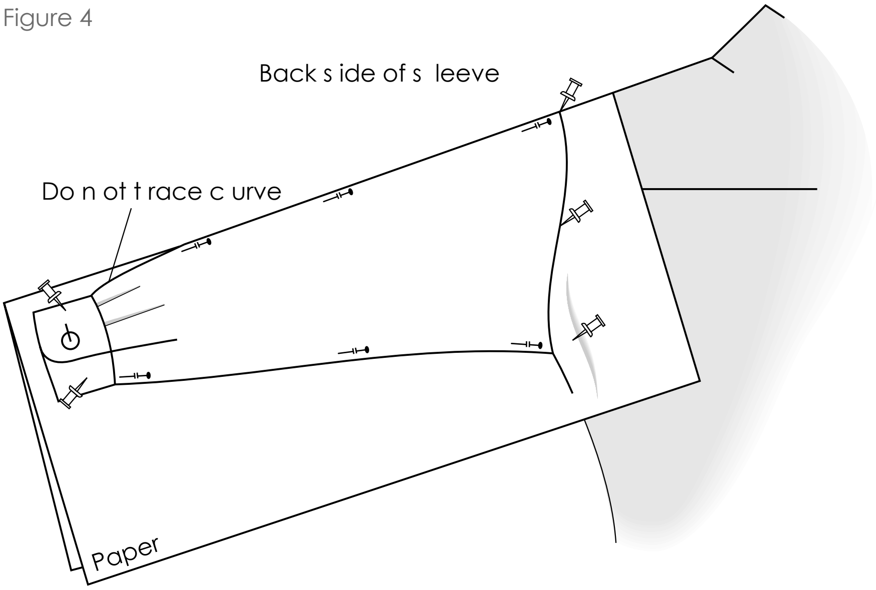
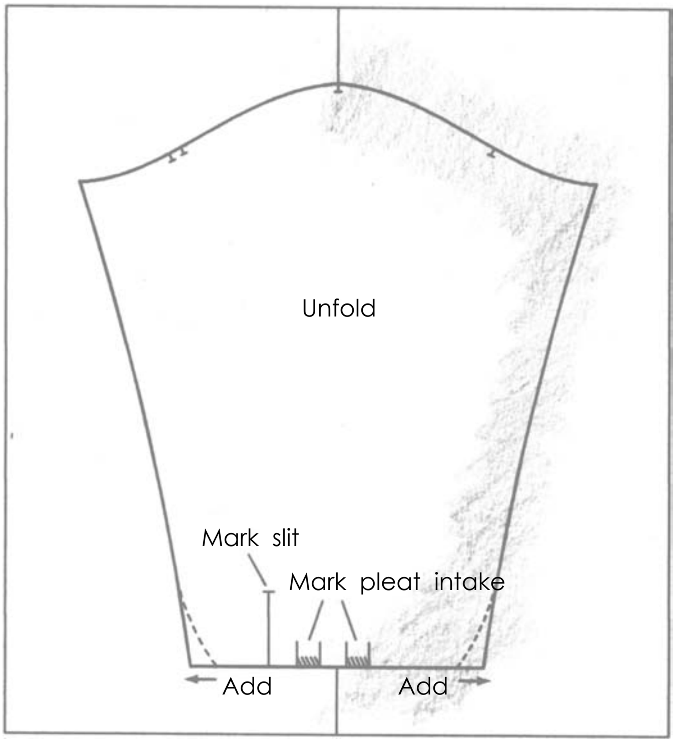

Back side of sleeve
Do not trace curve
Paper

Figure 4 Sleeve
- The back side of the sleeve is copied.
- Smooth pleats and capline of the sleeve so that the sleeve lies flat and the curve of the cap is smooth. Pin.
- Place folded paper along the fold of the sleeve. Pin to secure.
- Chalk-rub over the sleeve and pleats, ending at the cuff line.

Figure 5
- Remove paper and trace the outline to the other side of the fold.
- Unfold and pencil in the shape of the sleeve.
- Continue the line of the underseam and blend.
- Use the measurements of each pleat intake, marking the first pleat at location nearest the slit. Mark space and the second pleat intake. Notch pleats. Mark cap notches about 3 inches up from the underseam.

Back Shirt and Yoke
- Copy the back shirt following the same procedures. Walk the sleeve and mark notch locations. The sleeve cap should measure 1/2 inch greater than the front and back armhole. Adjust underseam, if necessary.

Figure 5


Unfold
Mark slit
Mark pleat intake
Add
Add

PANT TYPES

Pant with two pleats is illustrated.

Marking paper, muslin, or plastic may be used. Place on top of the pant.

Preparing Pant for Copy

Figures 1a, b

- Measure length and width of the belt. Measure zipper length. Draft the waist band.
- Pin mark pocket pouch.

Pleat Intake

- Slip a ruler under the pleats at the waist and measure pleat depth. Double each measurement and record for use later.
- *Back:* Measure the dart fold and double the measurement (not illustrated).

Figure 1a

Figure 1b

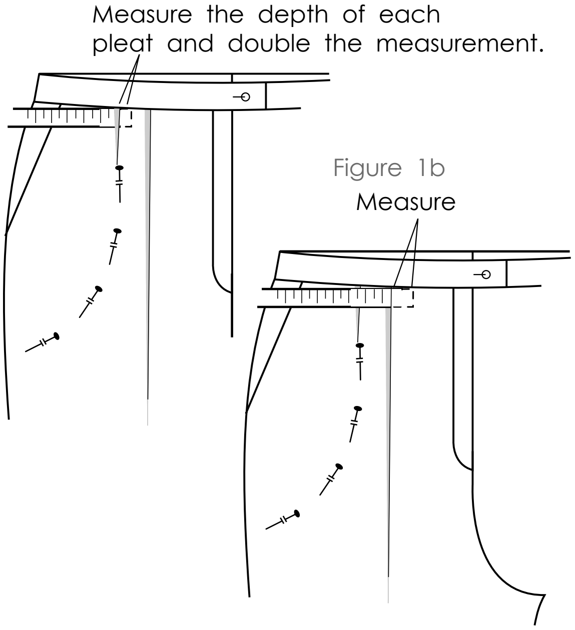

Measure the depth of each pleat and double the measurement.
Measure

Figure 2

- Move the other leg out of the way.
- Place pins along the curve of the crotch.
- Fold the outseam and inseam and pin.
- Pin the fold of the pleat flat to zero at the hem.

The pant is ready for copying.

Figure 2

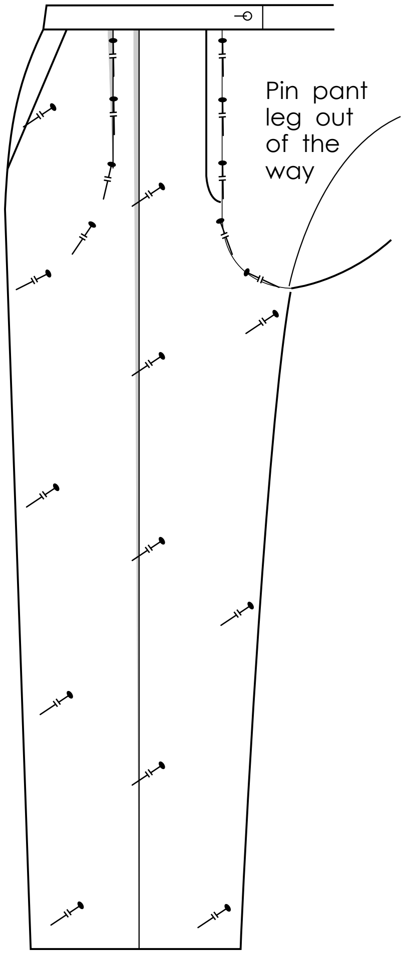

Pin pant leg out of the way

Figure 3

Figure 3 is an illustration of a pant copied by chalk-rubbing on paper.

- Draw a line in center of the paper.
- Lay pant on the table.
- Place paper on top of the pant, with center guideline aligned with the first pleat. Pin in place.
- After rubbing the pant, remove the paper and true all lines of the copy, including the pocket and pleat locations.
- Mark X out from the side waist equal to the intake of both pleats.

Figure 3

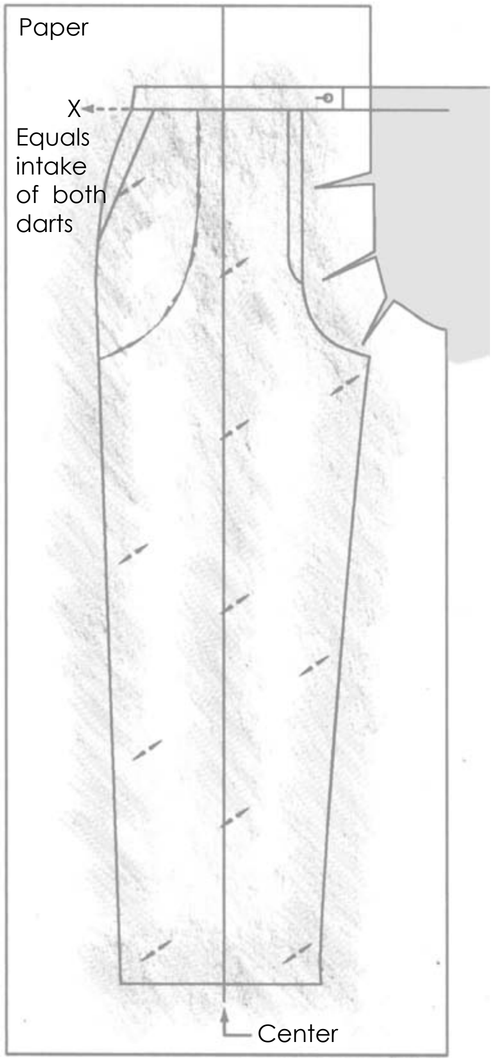

Paper
X
Equals intake of both darts
Center

Figure 4

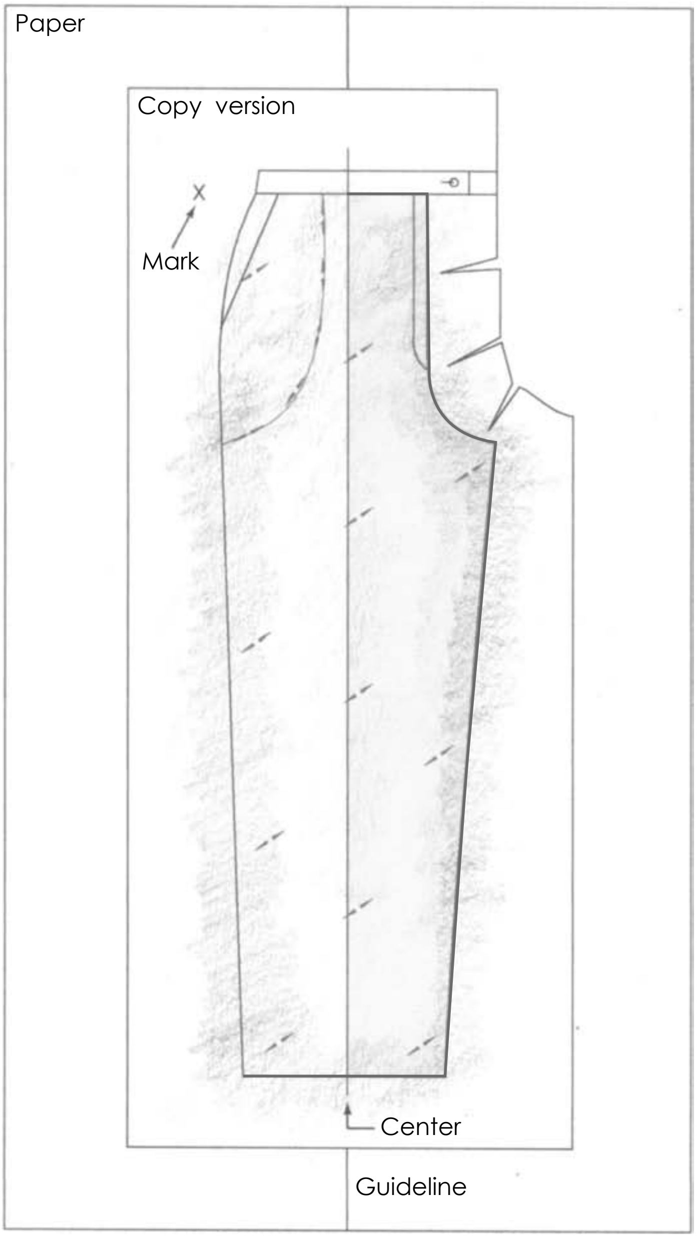

Paper
Copy version
X
Mark
Center
Guideline

Figure 4 Transferring Copy to Paper

- Draw a line through the paper.
- Place the copy of the pant on the paper. Match guidelines, and pin to secure.
- Trace the pant outline from the first pleat along the crotch curve, the inseam to the corner of the hemline.
- Trace the X-point.

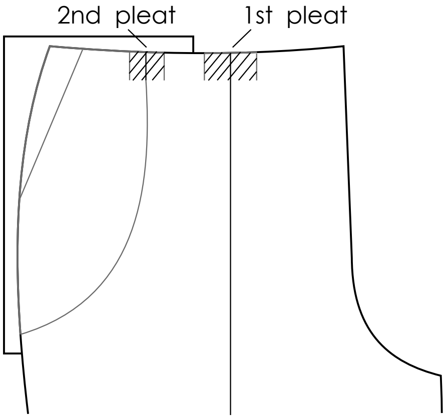
Figure 5

- Place a push pin at the corner of the pant leg.
- Pivot the pant until the side waist is placed at the X-mark on the paper underneath.
- Secure and trace the outside seam and the waistline to the line of the second pleat. Trace the pocket and pouch. Remove copy.

Figure 6

- True and blend all lines.
- Mark the location and intake for each pleat.
- Place paper underneath and trace the pocket backing and a copy for the pocket lining.

Figure 6


2nd pleat
1st pleat

Figures 7a, b

- Copies of the pocket backing and pocket lining are illustrated.

Figure 7 a

Pocket backing

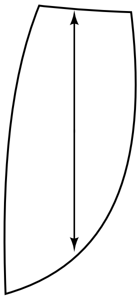


Figure 7 b

Pocket lining

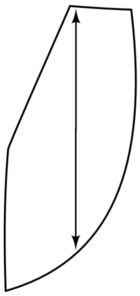


Figure 8 Back Pant

- Follow procedure given for the front pant.
- Measure dart intake, add this amount to the center back crotch, and draw a line to curve of the crotch.
- Draw a dart leg at the location marked on the copy.

Figure 5

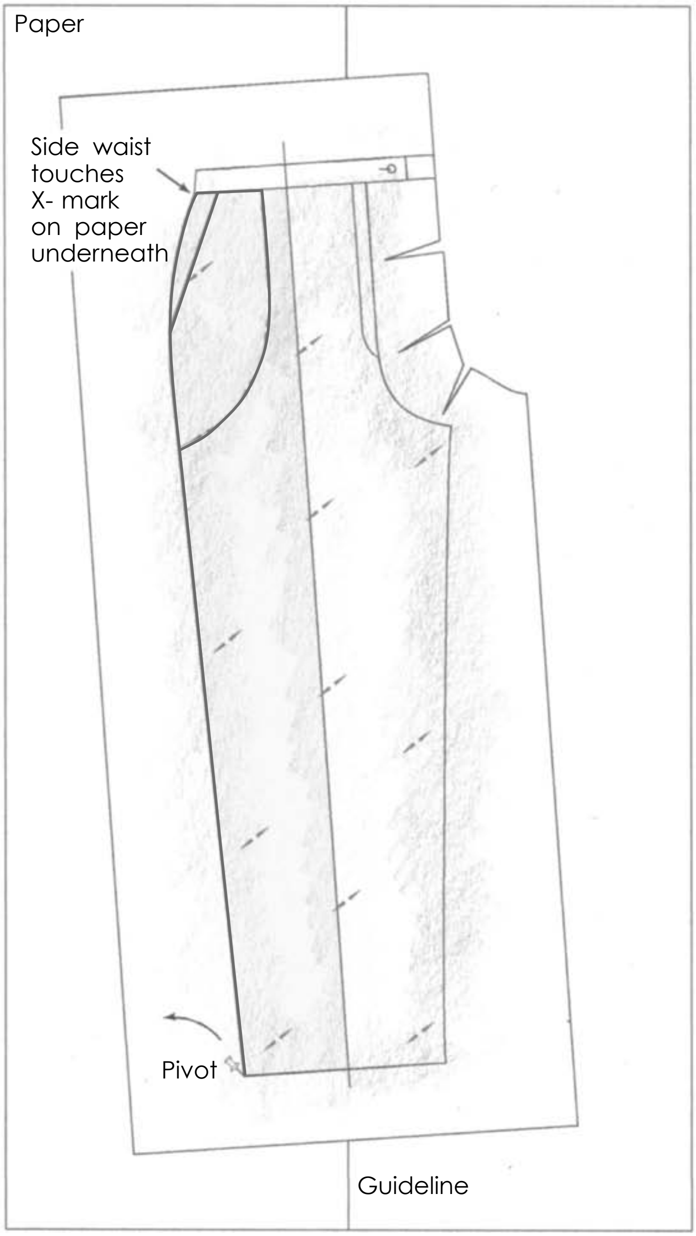
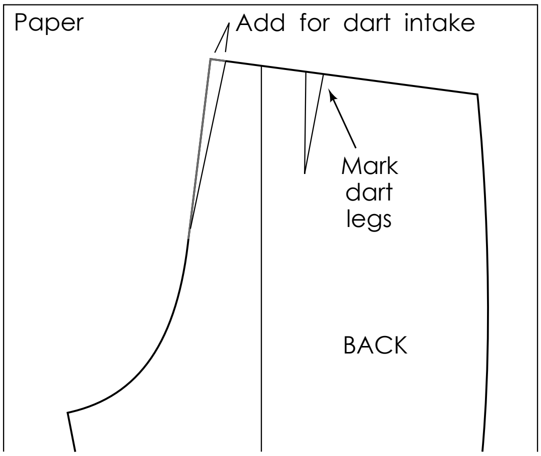

Paper
Side waist touches X- mark on paper underneath
Pivot
Guideline

Figure 8


Paper
Add for dart intake
Mark dart legs
BACK

JACKET COPY

The jacket can be copied on a table (as illustrated in the example of the shirt in the Shirt Types section) or it can be copied while placed on the form, as shown. The sleeve is copied on the table. Copying can be done with muslin or transparent plastic draped over the jacket. To copy with muslin, it is suggested that the seams of the jacket be pin marked for clarity when rubbing. It is not necessary to pin mark if transparent plastic is used. After the component parts of the jacket are copied, the muslin (or plastic) is trued and the patterns are traced. Compare measurements of the copy with those of the garment. The paper patterns are the base for developing facings, interfacing, and lining.

Preparing the Jacket

Figure 1

- Pin mark one side of the front and back jacket.
- Lift the collar and pin mark the neckline, shoulderline, around the armhole, and styleline panels.

Dart Intake

- Feel the fold of the dart at the styleline and pin. Measure and double the width. Record for reference later.

Figure 1

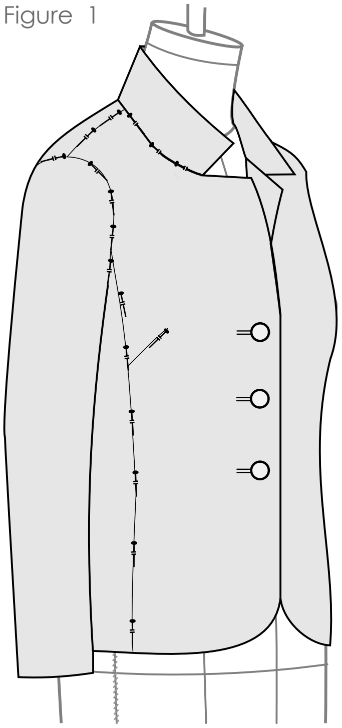


Figure 2 Fabric or Plastic Preparation

- Cut the fabric to length and width, plus 3 inches.
- Draw a guideline 1 inch from the edge.
- Square a line 1 inch up from the bottom of the fabric.
- Drape the front panel.
- Pin the sleeve away from the armhole.
- Place the guidelines on the extension and hem. Pin to secure. Pin at the dart point.
- Smooth the fabric around the jacket from the bottom to the dart locations up and from the top down, with the excess pinned at the location of the dart. Pin to secure.
- Chalk-rub or outline the front panel along the pin marks and lapel.
- Remove the fabric and true all lines.

Figure 2

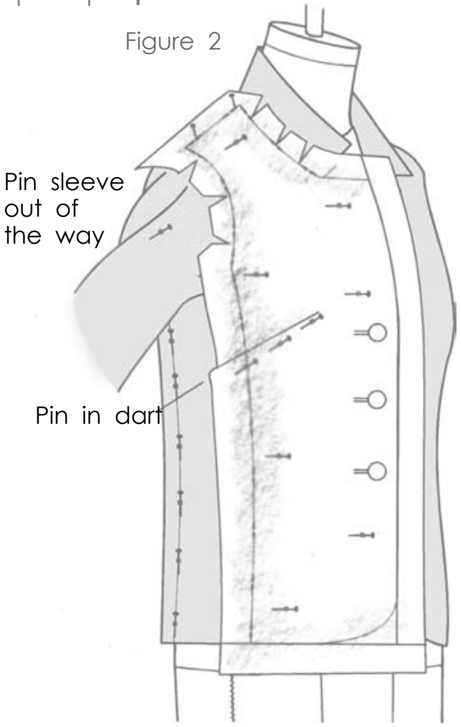


Figure 3 Side Panel—Muslin Preparation

- Draw a straight grainline through the center of the muslin.
- Place the grainline in center of the side panel. Pin to secure.
- Slash muslin to the seamline under the armhole.
- Chalk-rub or outline. Remove and true lines. Repeat the process for the back jacket and panel.

Figure 4 Collar—Use Paper Under the Collar

- Pin mark center of the back collar.
- Draw a line on paper.
- Place center back of the collar on the line of the paper. Pin to secure.
- Draw the outline of the collar and, with a tracing wheel, trace the neckline, shoulder location, and center back.
- Remove the collar, true the lines, fold and trace.

Figures 5a, b Preparing the Sleeve

- Pin mark the hem of the sleeve in line with the side seam of the form.
- Pin mark where the shoulder and sleeve cap meet.
- Pin across the sleeve in line with the curve of the armhole underneath.
- Cross-pin through the sleeve at the center of biceps level.

Figure 3

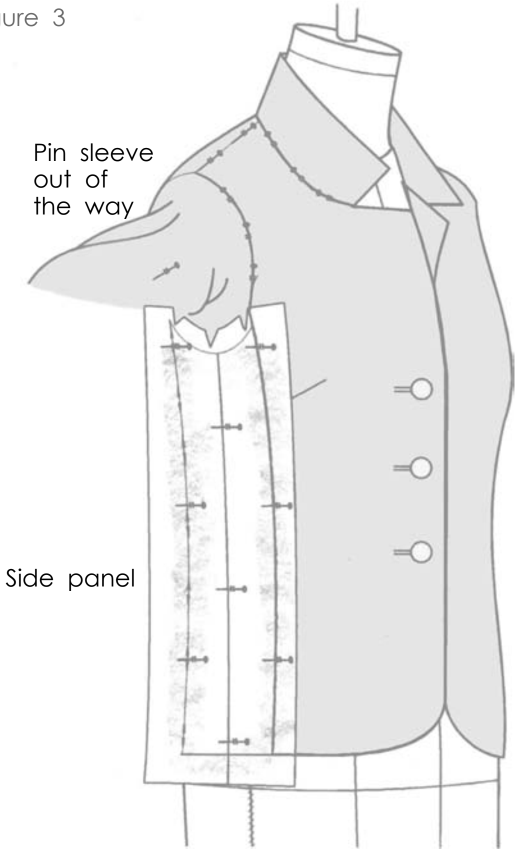


Figure 4

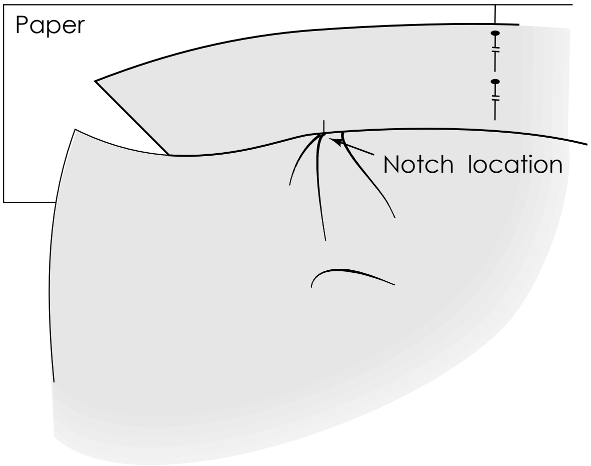


Figure 5 a

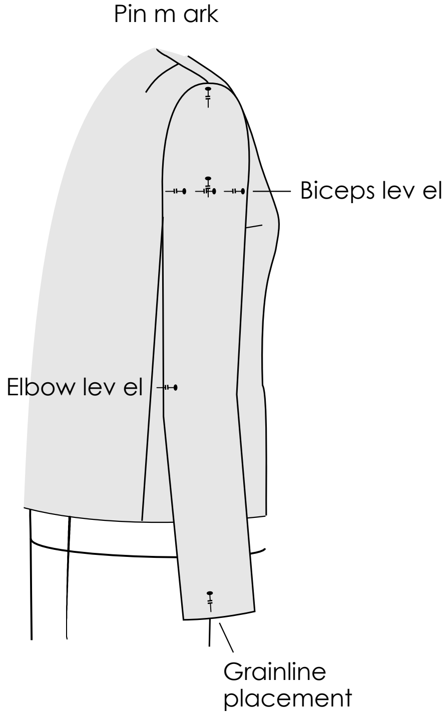
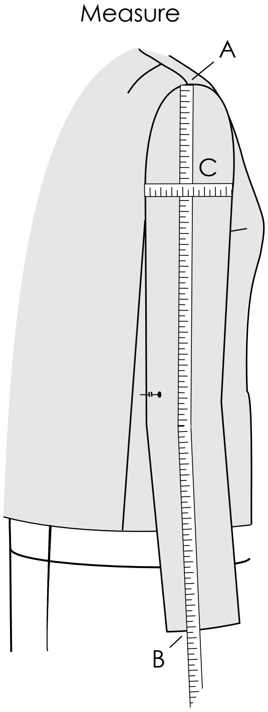


Figure 5 b



- Pin sleeve at level with the waistline (elbow level) (Figure 5a).
- Measure the sleeve length (A to B). Record.
- Measure from cap at the shoulder to pin mark at biceps level (A–C). Record.
- Measure across biceps and double the measurement.
- Remove the jacket from the form.

Figure 6 Undersleeve

- Place jacket on the table and turn to the undersleeve. Lay the sleeve flat.
- Cross-pin to set the alignment of the sleeve from the other side.
- Pin along the fold line, as indicated.
- Pin mark 1 1/2 inches up and down from the pin at elbow level for ease notches.

Figure 6

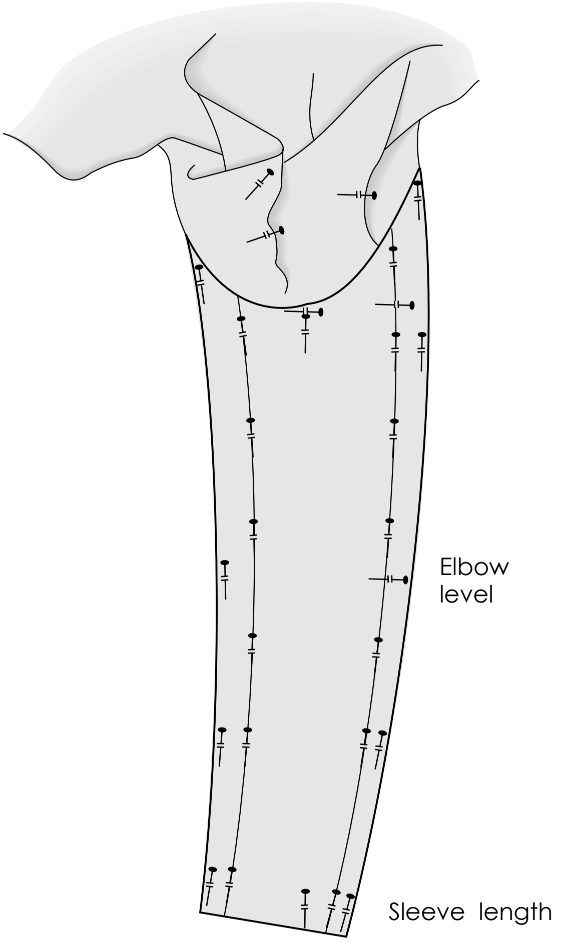
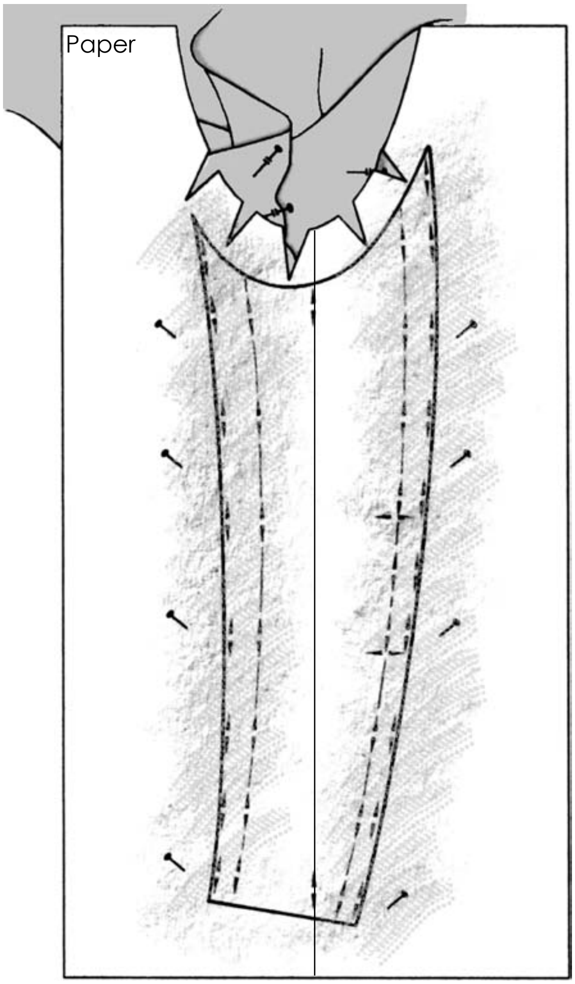

Elbow
level
Sleeve length

Figure 7

- Draw a straight grainline through center of the muslin.
- Place the guideline on the sleeve, in line with the center pins. Pin to secure.
- Slash muslin for a close fit at the armhole.
- Chalk-rub along fold lines and draw the undercurve.
- Remove the muslin and true all lines.

Figure 7



Figures 8a, b

- Fold muslin at the uppersleeve part of the copy and trace the corner section (bold line).
- Unfold and repeat on the other side.

Figure 8 a

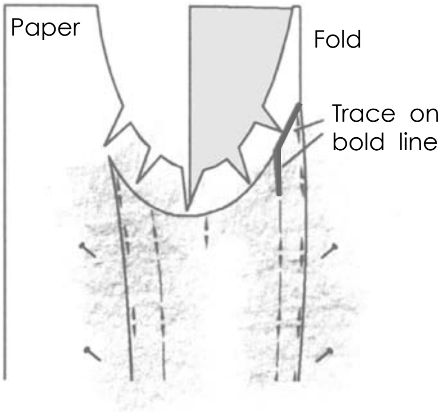

Paper
Fold
Trace on
bold line

Figure 8b

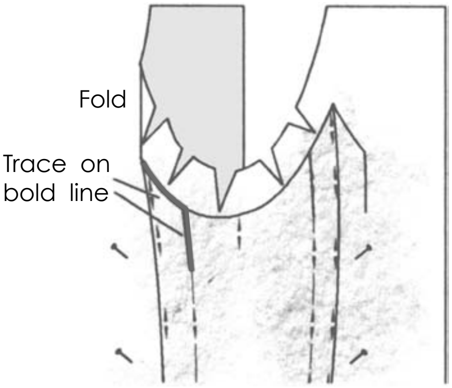

Fold
Trace on
bold line

Figure 9
Measure from the seamline of the undersleeve to the fold at elbow level and hem. Use measurements to mark a point out from the fold at each side. Connect with the curve ruler, as illustrated.

Figure 10
Use the sleeve measurements to draw lines.

A to B = Sleeve length (straight grainline).

A to C = Biceps level.

Figure 11
- Place muslin guideline on the A–B line, with hem touching B line at the grainline.
- Secure and trace the outline of the uppersleeve and undersleeve (lined area).
- Mark notches for ease control at the elbow.
- Notches for the sleeve should be marked at the time all patterns are trued.
- Remove the muslin copy.
- Draw the curve of the sleeve cap, touching point A, as illustrated.

Figure 9

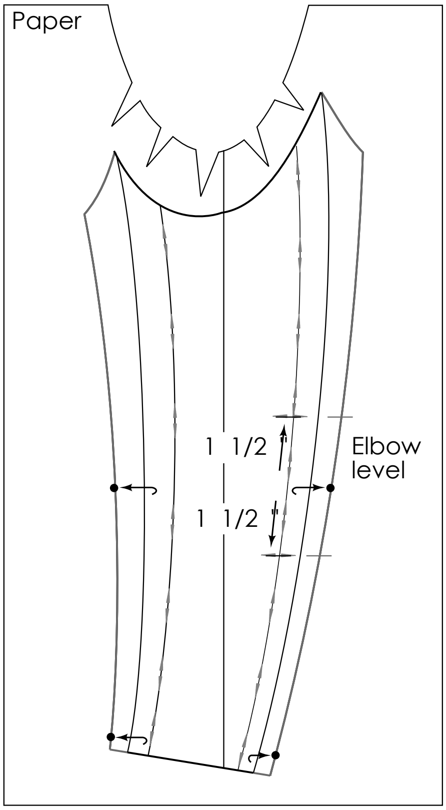

Paper
1 1/2
1 1/2
Elbow level

Figure 1 0

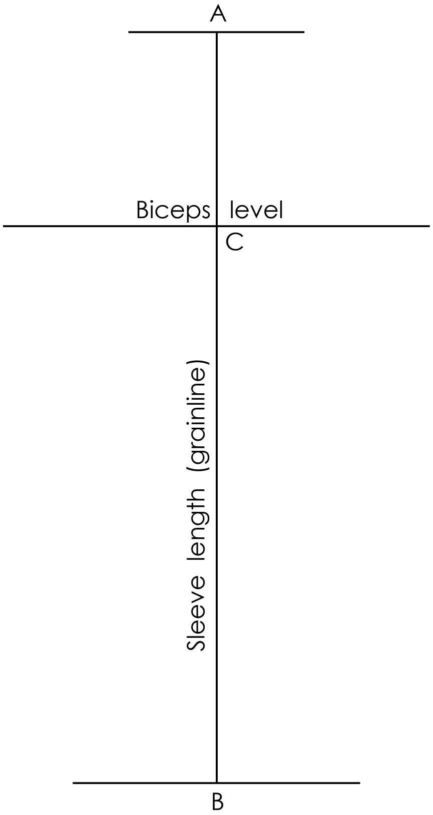

A
Biceps level
C
Sleeve length (grainline)
B

Figure 11

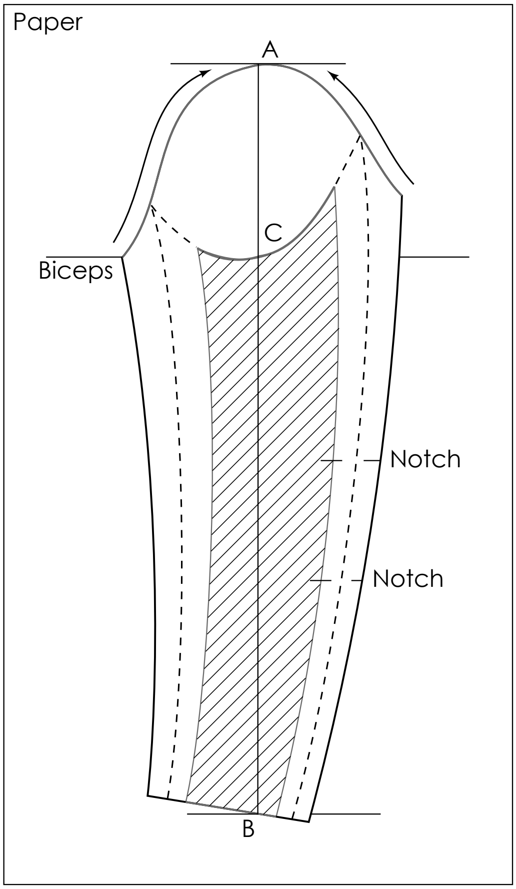

Paper
A
C
Biceps
Notch
Notch
B

Figure 12

- Trace the undersleeve from the oversleeve pattern.
- Mark ease control notches at elbow.

Figure 1 2

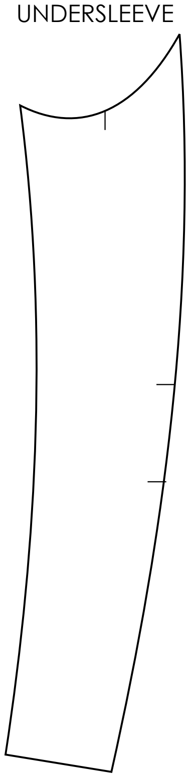
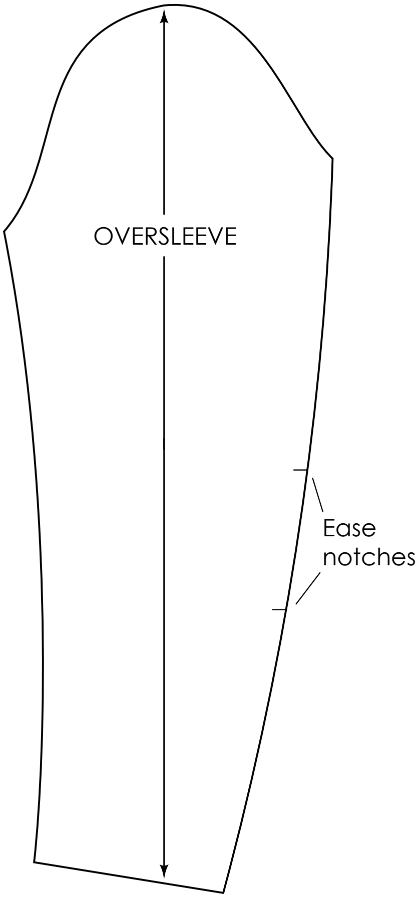


Figure 13 Oversleeve

- Walk the undersleeve from hemline to the ease notch of the oversleeve. The ease between the placements of the notches should be 1/4 inch. Add to the length (for additional ease) if necessary and adjust the notch location.
- Add seam and cut from the paper.

Figure 13



Complete the Pattern

- Make paper patterns for all the rub-off garment parts. True and compare the lengths and widths with the garment. Add seams and grainlines. Mark sleeve cap notches as the sleeve is walked around the armhole.
- Cut and stitch for the test fit. After the patterns have been perfected, make the facing, lining, and interconstruction. They are developed from the original patterns.

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

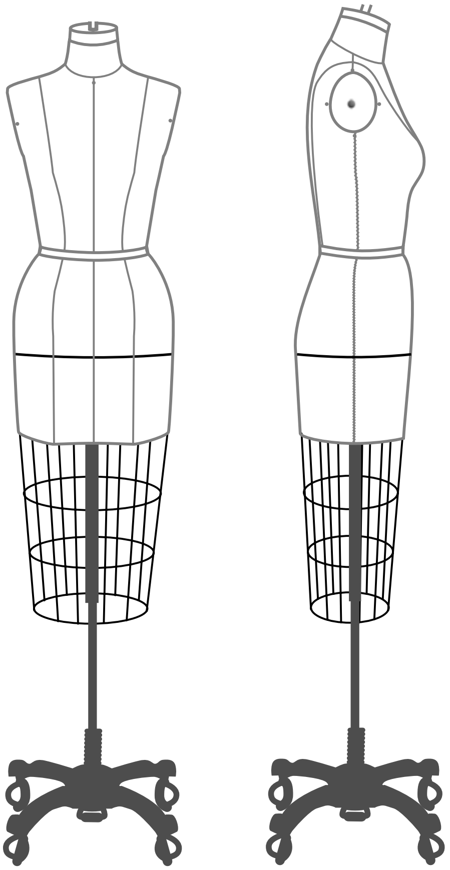
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____
2. Waist: _____
3. Abdomen: _____
4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
   B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
   Front = 1" (2 darts 1/2 to 5/8")
   Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

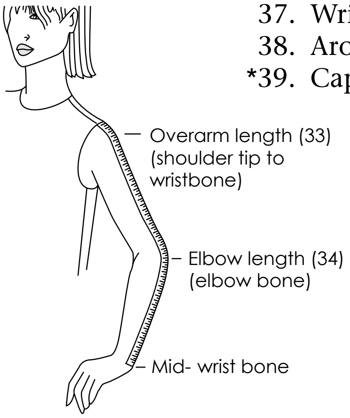
Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

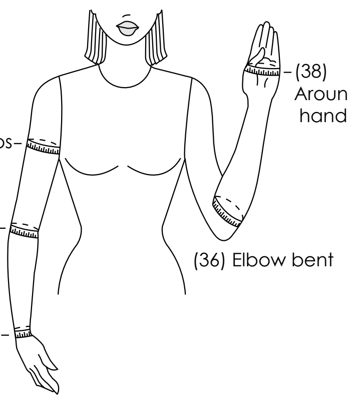
Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____

Length


Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone

Circumference



*Measuring the Arm

Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

This page intentionally left blank

Pants

From Chapter 26 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

Pants

BIFURCATED—WHAT'S THAT?
THE LEG RELATIVE TO THE PANT
PANT TERMINOLOGY
ANALYSIS OF THE PANT FOUNDATIONS
  The Principle
SUMMARY OF THE PANT FOUNDATIONS
MEASURING FOR THE PANT DRAFT
CULOTTE—FOUNDATION 1
TROUSER—FOUNDATION 2
SLACK—FOUNDATION 3
JEAN—FOUNDATION 4
  Dartless Jean Pant
COMPLETING THE PANT PATTERN
  How to Balance the Pant Patterns
  Seam Allowance
PANT DESIGNS
  Box-Pleated Culotte
  Culottes with Long, Wide-Sweeping Hemlines
  Pleated Trouser
  Pocket Draft for Trouser
  Cutting the Trouser Patterns
  Finishing Methods
  Sewing Instructions for the Pocket
  Attaching the Zipper
  Waist Band Loops
  Waist Band
THE DUNGAREES FOUNDATION
  The Foundation Draft
  Dungarees Chic
  Baggy Pant
  Hip Hop Pant
  Pull-On Pant with Self-Casing
  High-Waist Pant
  Jean with V-Yoke
  Contour Pant with Creaseline Flare
  Pant with Flared Leg
  Pant with Curved Hemline
PANT DERIVATIVES
  Names and Terms
  Developing Pant Derivatives
  Short Shorts
  Short, Jamaica, and Bermuda Pants
  Pedal-Pushers, Toreador Pants, and Capri Pants
  Design Variations
JUMPSUIT FOUNDATIONS
  Trouser/Slack Jumpsuit Foundations
  Great Coverall
PANT FIT PROBLEMS/CORRECTIONS
  Model #1 Proper Stance
  Model #2 Fit Problems
  Analyzing the Fit of the Pant

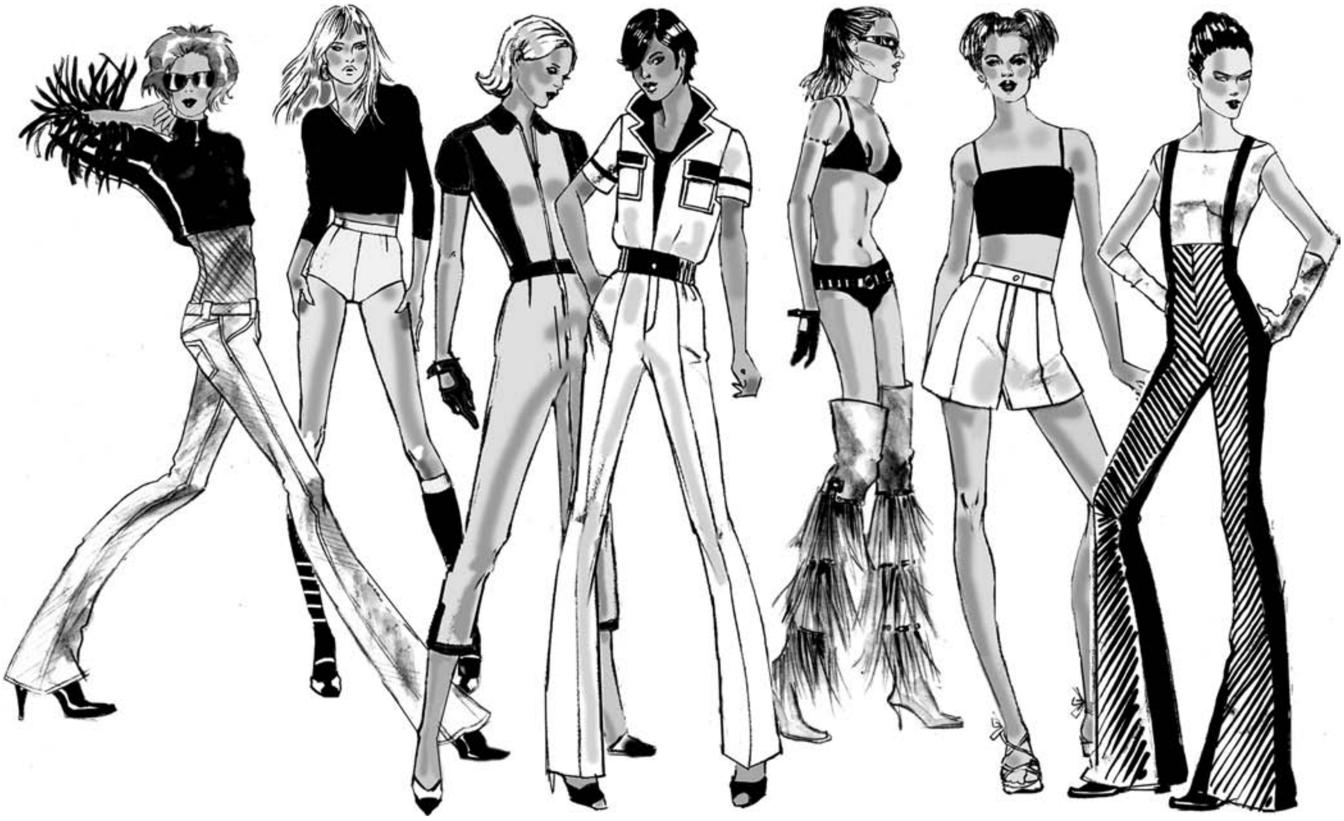
BIFURCATED—WHAT'S THAT?

Thank heavens Mrs. Bloomer knew! She was immortalized for creating the bloomer, the first divided (bifurcated) pant for ladies.

We have come a long way since Mrs. Bloomer's bloomers in embracing not only pants but jumpsuits, swimsuits, and bodysuits as well—as though our very lives depended upon them. No matter what shape, what length, what color, or even how outlandish the bifurcates, they have found their way into our hearts, our wardrobes, and our lives.

New concepts in the way pants should fit the female figure have become the focal point for designers and patternmakers. The grand old standby, the trouser, has not always resulted in the look desired, nor has it responded well to the uniqueness of the female form. Designers and patternmakers have been forced to rethink the philosophy of fit and the utility of pants and their derivatives.

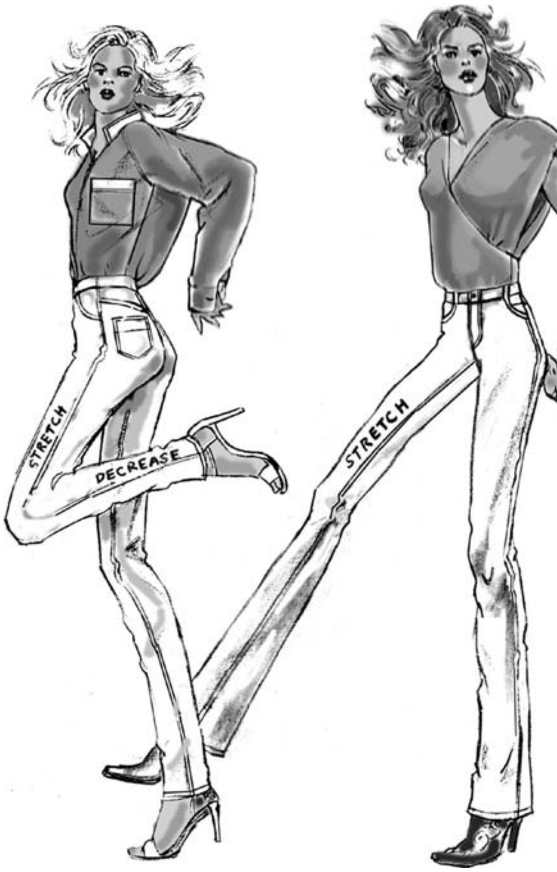
The basic principles underlying pant development are not being challenged here. These principles are being utilized in a special way, always keeping in mind the distinct characteristics of the female figure.



THE LEG RELATIVE TO THE PANT

The leg performs a variety of functions, such as walking, running, bending, squatting, and sitting. Whenever the leg moves or the knee bends, the muscles and skin of the lower torso increase and decrease in length. The illustrations show where and when the body increases and decreases in length due to movement. If a garment is to fit comfortably and hang well on the figure, the pant must not hinder the actions of the leg.

To ensure the pant fits well, measurements must be taken with care and accuracy. Each pant foundation should be cut in a firm fabric (not a knit). The foundation pattern should be corrected before being used for designs; otherwise, fitting errors will be passed on to all designs based on it.


STRETCH
DECREASE
STRETCH

PANT TERMINOLOGY

The following terms relate to the pant draft, the human figure, and the pant garment. The illustration links terms and locations.

Bifurcated. Divided into two parts (right and left sides).

Crotch. Base of torso where legs join the body.

Crotch depth. The distance from waist to base of crotch of the figure.

Rise. A tailor's term referring to the crotch depth.

Crotch length. A measurable distance from the center front waist, around the crotch base, to the center back waist.

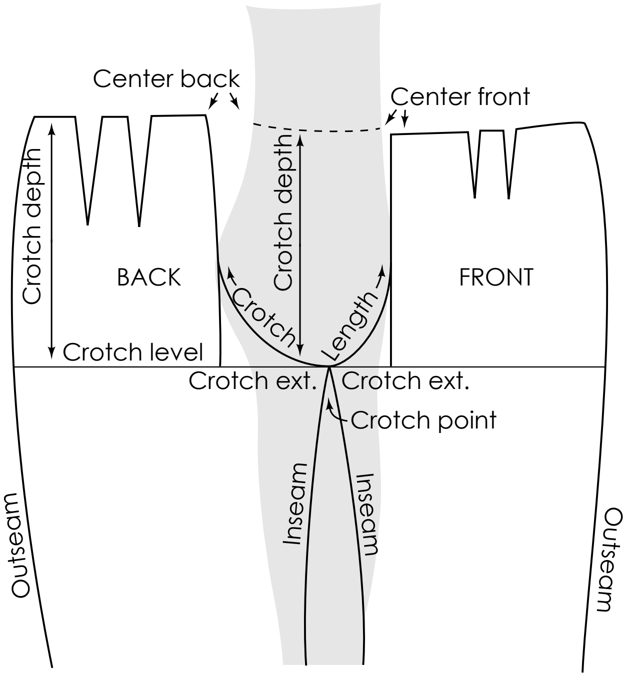
Crotch extension. An extension of the crotch line at center front and back center lines that provides coverage for the inside part of the leg.

Crotch point. End of the crotch extension.

Crotch level. Dividing line separating torso from legline of the pant. (The total width across the pant from the front crotch point to the back crotch point.)

Outseam. Side seam joining the front and back pant.

Inseam. Seam between the legs joining the front and back pant.


Center back
Center front
Crotch depth
BACK
Crotch depth
FRONT
Crotch
Length
Crotch level
Crotch ext.
Crotch ext.
Crotch point
Outseam
Inseam
Inseam
Outseam

ANALYSIS OF THE PANT FOUNDATIONS

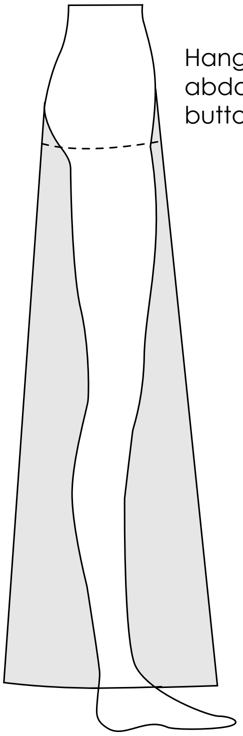
The Principle

Pant foundations are determined by the length of the crotch extensions. Long extensions fit loosely around the crotch level and short extensions fit closer. See Figures 1, 2, 3, and 4. The foundation part of the pant covers the waist to crotch level, and the pant styles (silhouettes) start at crotch level and end at the hem.

Crotch extensions provide the portion of the pant that covers the inside part of the leg. The length of the extension is determined by (1) the foundation desired, (2) the percentage of the front and back hip measurement, and (3) the upper thigh measurement.

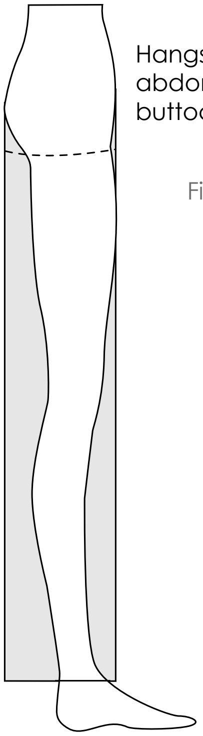
Analyze and compare the following four pant foundations. Each pant foundation fits the abdomen and buttocks in a special way. Aside from the legline styles, how do they differ?

Figure 1 Culotte



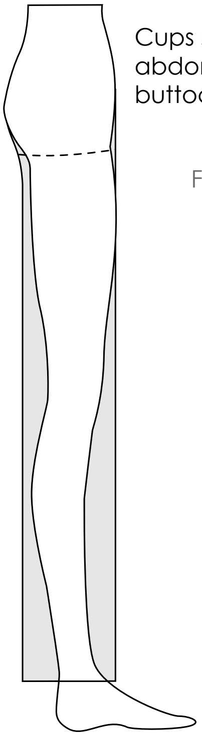
Hangs away from abdomen and buttocks

Figure 2 Trouser



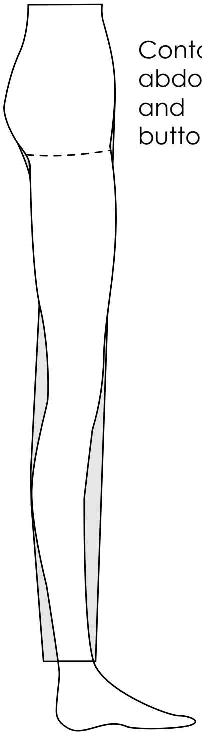
Hangs straight from abdomen and buttocks

Figure 3 Slack



Cups slightly under abdomen and buttocks

Figure 4 Jean



Contours abdomen and buttocks

Which pant foundation has the longest crotch extension? Which pant foundation has the shortest crotch extension? *Answer:* The culotte has the longest crotch extension because the pant is the greatest distance from the figure at crotch level. The jean has the shortest because the pant fits the contour of the figure at crotch level.

SUMMARY OF THE PANT FOUNDATIONS

A pant has two identities: its *foundation* (the part above crotch level) and its *legline* (the style below the crotch level). There are four major pant foundations, characterized by the hang of the pant from the abdomen and buttocks: The culotte hangs away, the trouser hangs straight, the slack cups, and the jean contours the abdomen and buttocks areas.

The foundation of a pant is controlled by the length of the front and back crotch extensions. The extensions are based on a percentage of the front and back hip measurements, with consideration of the upper thigh measurement.

Formula for Crotch Extension

Culotte: Back—one-half of back hip, plus 3/4 inch
Front—one-half of front hip, minus 3/4 inch
Trouser: Back—one-half of back hip
Front—one-fourth of front hip
Slack: Back—one-half of back hip, minus 3/4 inch
Front—one-fourth of front hip
Jean: Back—one-fourth of back hip for contour fit, one-third of back hip, minus 1/2 inch for close fit
Front—2 inches (subtract 1/8 inch for sizes under 10 and add 1/8 inch for each size over 14)

Crotch level: The distance from the front crotch point to the side seam and from back crotch point to side seam should measure greater than the upper thigh measurement at least by the amounts that follow (see the Personalize Jean Countour Fit section, Figure 1, later in this chapter):

Trouser: 3 1/2 inches more
Slack: 2 1/4 inches more
Jean: 1 to 1 1/2 inches for contour fit and about 2 inches for a relaxed fit

Crotch length: The crotch length should measure at least the same as the form or figure. If it does not, add the needed amount to the chosen pattern as indicated (see the Personalize Jean Countour Fit section, Figure 1, later in this chapter):

Jean: Pitch the back pant. Refer to the Personalize Jean Countour Fit section, Figures 2a, 2b, and 3, later in this chapter.
Slack: Pitch the back pant *and* extend the back crotch point equally. Refer to the Personalize Jean Countour Fit section, Figures 2a, 2b, and 3, later in this chapter.
Trouser: Extend front and back crotch points equally.

The test fit should be cut in a firm fabric and not in a knit. Put the stitched pant on the figure or form with a waist band and a back zipper for the foundation fit. A guide to fitting and pattern corrections is within the Pant Fit Problems/Corrections section later in this chapter.

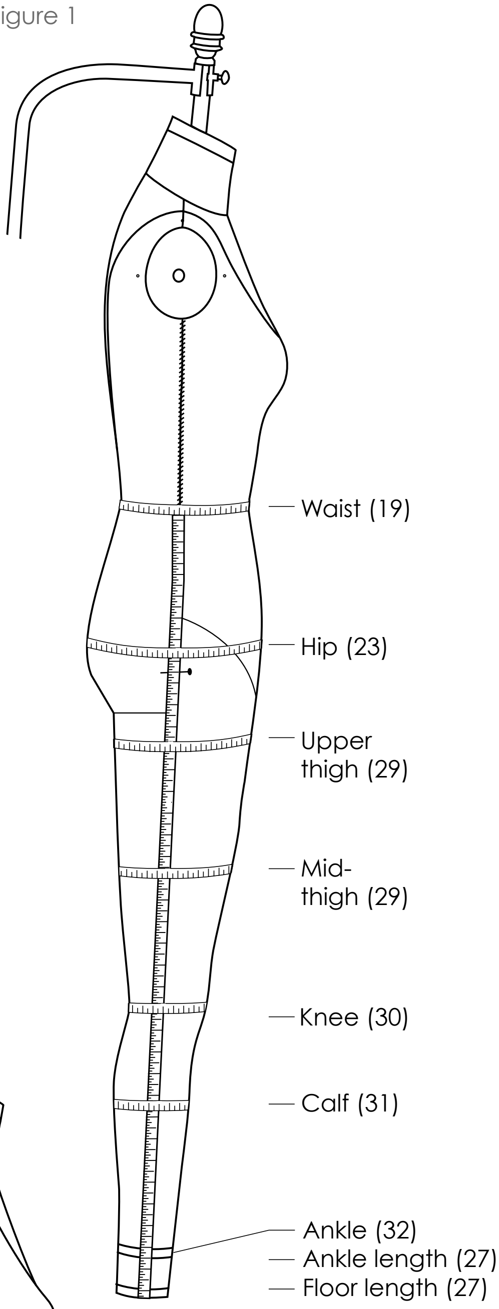
MEASURING FOR THE PANT DRAFT

To draft a pant for a personal fit, use the instructions that follow. If the waist, hip, abdominal, and hip depth measurements have already been taken and recorded on the measurement chart, use them. Otherwise, take the circumference measurement of the waist and hip. Divide each measurement by 4 and modify as follows:

Example: Waist 26″ ÷ 4 = 6 1/2″
Add 1/4″ = 6 3/4″ front waist
Subtract 1/4″ = 6 1/4″ back waist
Hip 38″ ÷ 4 = 9 1/2″
Subtract 1/4″ = 9 1/4″ front hip
Add 1/4″ = 9 3/4″ back hip

- To determine dart intake, subtract waist from hip circumference measurement.
- Record all measurements.

Figure 1



Vertical Length Measurements (Record on Measurement Chart)—Personal or Form

Figure 1
With the metal-tipped end of the tape placed below waist tape at side, measure the following length locations:

To ankle length (27)

To floor (27)

To mid-knee (27)

Circumference Measurements

Waist arc (19) Center front to side seam.

Center back to side seam.

Hip arc (23) Pin mark 9″ below waist at center front or widest part of the hip. Measure at this level.

Center front to side seam.

Center back to side seam.

Upper thigh (29) Near crotch base.

Mid-thigh (29) Between crotch and knee.

Knee (30) Mid-knee level.

Calf (31) Widest part below knee.

Ankle (32)

Figures 2a, b
Crotch length (28). Center front under crotch to center back.

Figure 2a

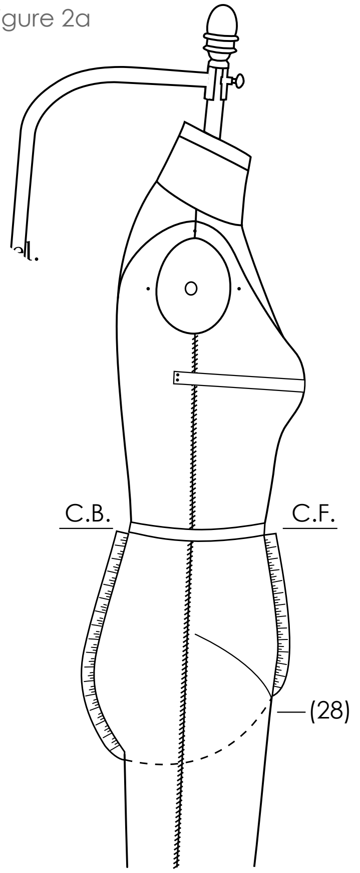


Figure 2b
Vertical trunk. (28) Front to back at shoulder/neck passing under the crotch.

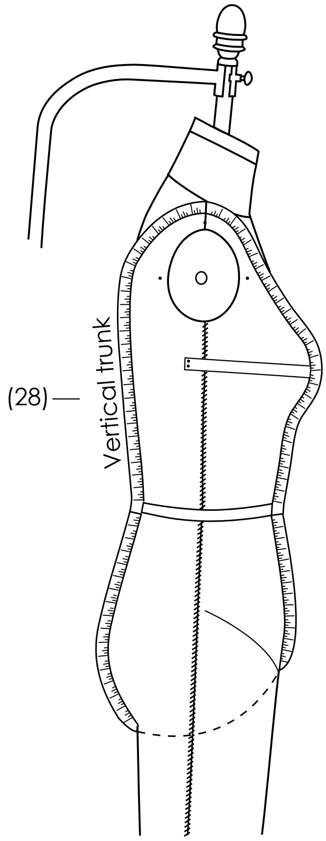


Figure 2b

(28)
Vertical trunk

Figures 3, 4 Crotch Depth (24)
Form: With square ruler in place, measure from waist level to crotch level (not to the end of the ruler).

Personal: Place belt, elastic, or tie around the waist. Measure below the belt to base of the chair.

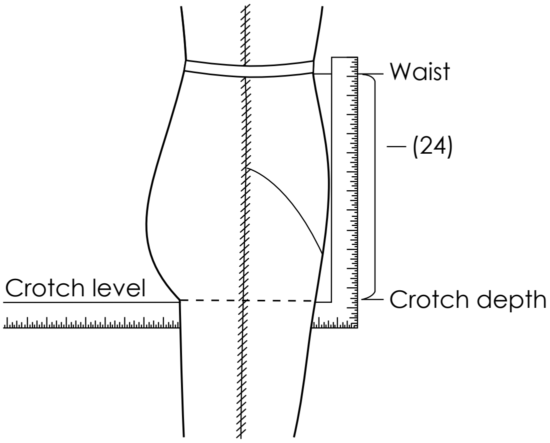


Figure 4

Waist
(24)
Crotch level
Crotch depth

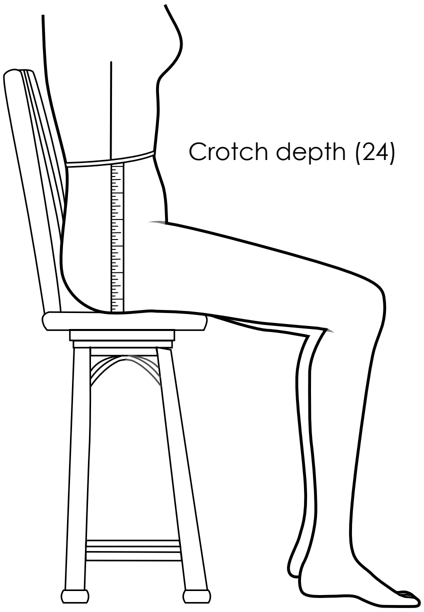


Figure 3

Crotch depth (24)

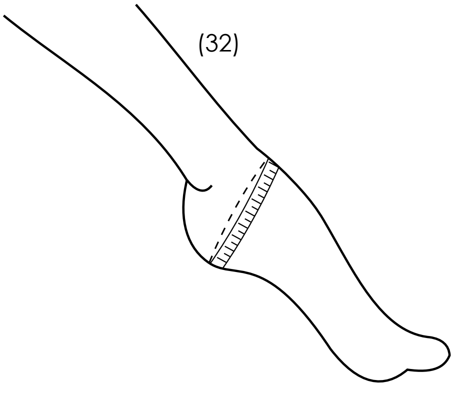


Figure 5

Figure 5 Foot Entry (32)
Measure around heel and instep of the foot.

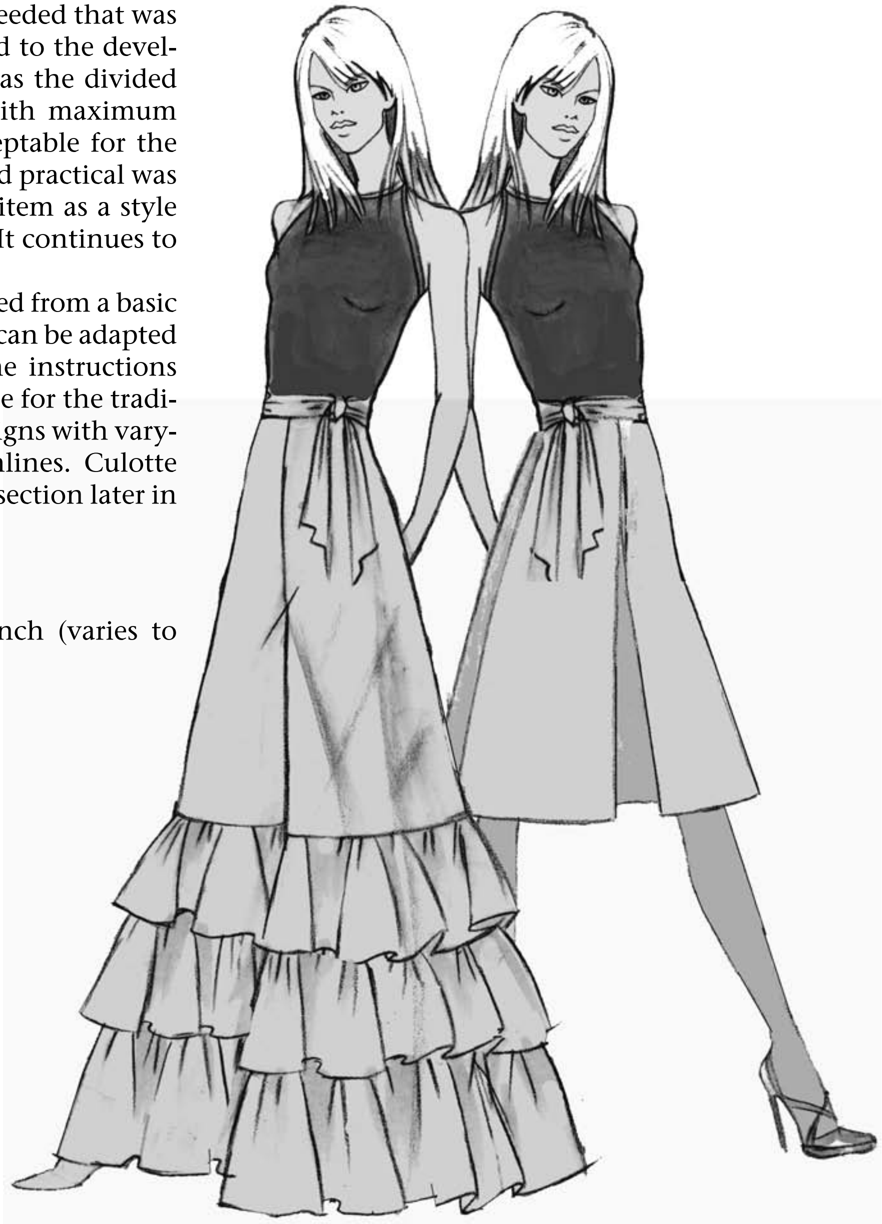
CULOTTE—FOUNDATION 1

When it first became fashionable for women to ride bicycles, it was unfashionable (even improper) for them to wear pants. A garment was needed that was both functional and ladylike. This led to the development of the culotte (then known as the divided skirt), which provided the wearer with maximum mobility. The skirtlike pant was acceptable for the mores of that period. So successful and practical was the culotte that it became a fashion item as a style for both casual and dressy garments. It continues to be an important fashion item.

The culotte foundation is developed from a basic A-line skirt; however, any skirt design can be adapted into a skirtlike pant by following the instructions given. The foundation is used as a base for the traditional box-pleated culotte and for designs with varying lengths and wide-sweeping hemlines. Culotte designs are given in the Pant Designs section later in this chapter.

Measurements Needed

- Crotch depth _______ plus 3/4 inch (varies to 1 1/4 inches). See previous page.



Culotte Draft

One-half of the front and back culotte are drafted.

- *Patterns needed:* Front and back A-line skirt and waist band.

Figure 1 Front

To allow for crotch extensions, place patterns at least 8 inches from paper's edge. Trace front and back skirt. Include all markings.

A–B = crotch depth plus 3/4 (or more) inch (24).
A–X = one-half of A–B less 1/2 inch. Mark.
B–C = one-half of basic front hip, less 3/4 inch, squared from B.
D–E = B–C, squared from D. Connect C with E.
B–b = 1 1/2-inch diagonal line.

Draw the crotch with a curve, touching C and b and ending at or near X-point. Modify the curve if you are unable to touch b.

Figure 1

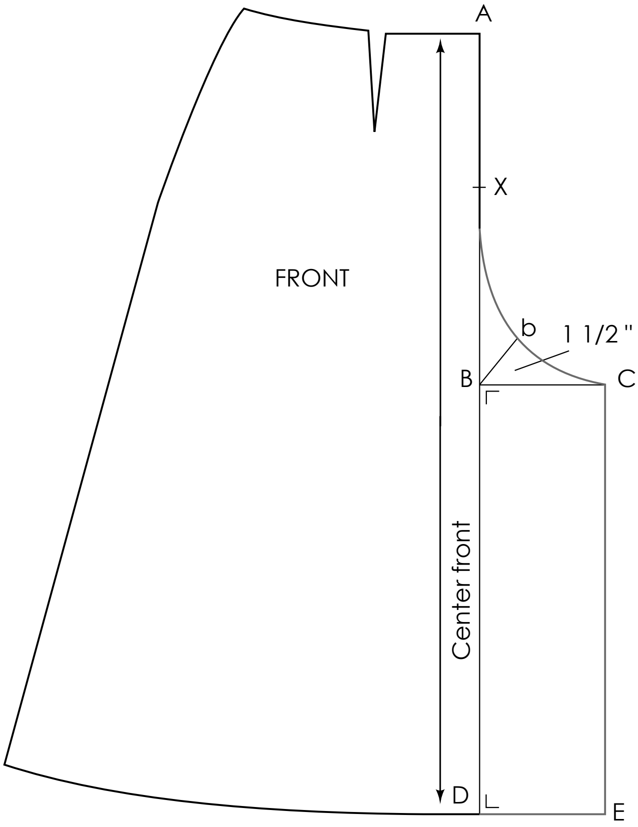
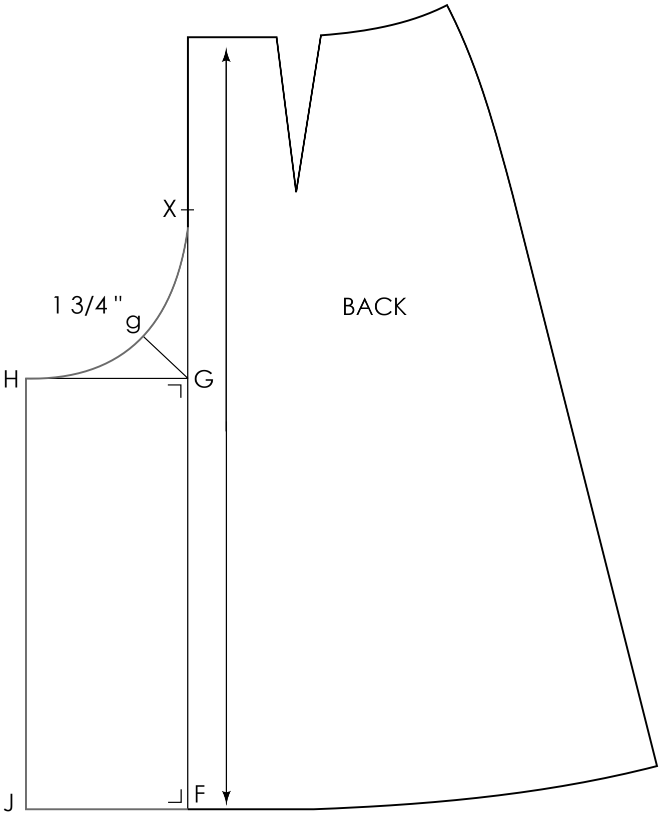


Figure 2 Back

F–G = D–B (of front pattern).
G–H = one-half of back basic hip plus 3/4 inch, squared from G.
F–J = G–H, squared from F. Connect J with H.
G–X = B–X (of front pattern). Mark.
G–g = 1 3/4-inch diagonal line. Draw the crotch curve beginning near H to g and ending at or near the X-point.

- Cut for a test fit.

Figure 2



TROUSER—FOUNDATION 2

The trouser is a pant that hangs straight downward from the outermost part of the abdomen and buttocks. It fits closer to the body than does a culotte because the front crotch extension is shorter. This pant may be worn in its present form or modified for other pant designs, such as the pleated trouser, and the baggy (see "Pant Designs"). It is also used as a base for pant derivatives such as the shorts, the Jamaica, the Bermuda, and the pedal-pusher.

Measurements needed for the draft are noted by asterisks on the measurement chart. To take pant measurements, see Measuring for the Pant Draft section earlier in this chapter. See Pant Fit Problems/Corrections section later in this chapter, for a fitting guide.

Measurements Needed

- (27) Waist to ankle ___
- (24) Crotch depth ___
- (23) Front hip arc ___
  Back hip arc ___
- (19) Front waist arc ___
  Back waist arc ___

Personal fit—use chart measurements for the dart intake. Add 1/4 inch for ease. (Decrease the back dart intake 1/4 inch if O touches the A line.)

Trouser Draft

Figure 1

A–B = waist to ankle (pant length).

A–D = crotch depth plus 3/4-inch ease (varies).

D–C = hip depth: one-third of D–A.

B–E = knee depth: one-half of B–D plus 1 inch (toward crotch level).

Square out from both sides of A, B, C, D, and E.

Figure 1

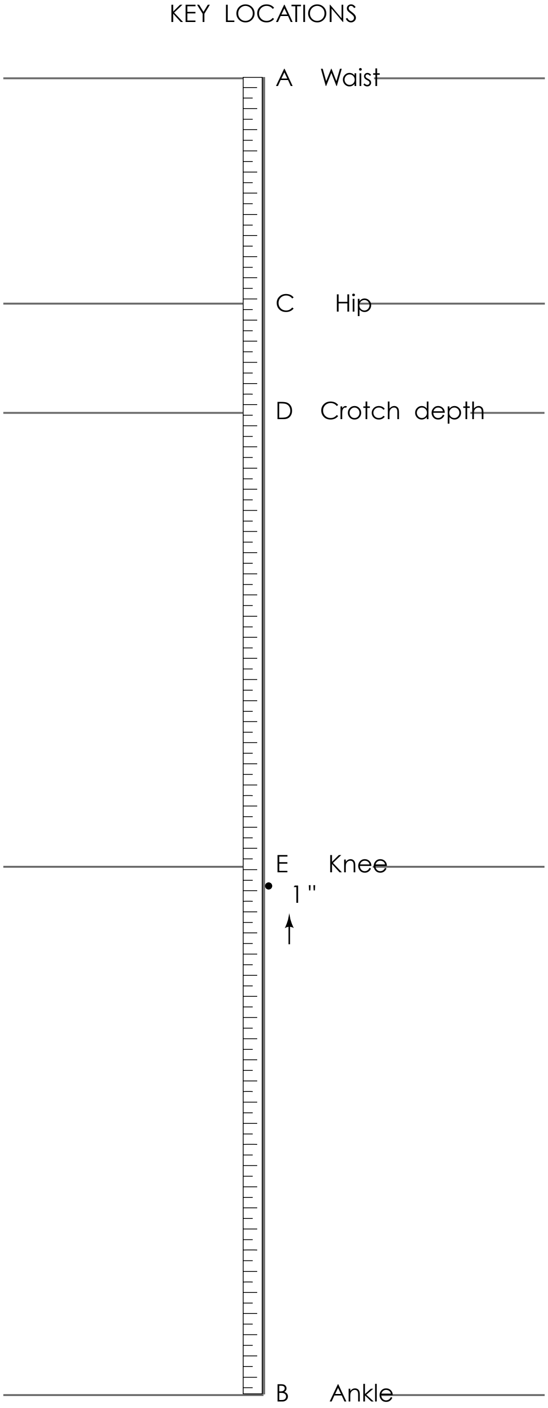


Figure 2

Back

C–F = back hip plus 1/4 inch (ease).
D–G = same as C–F.
A–H = same as C–F.
Connect G with H.
G–X = one-half of G–H.
G–I = one-half of G–D.

Front

C–J = front hip plus 1/4 inch (ease).
D–K = same as C–J.
A–L = same as C–J.
Connect K with L.
K–X = one-half of K–L.
K–M = one-fourth of K–D.

Figure 2

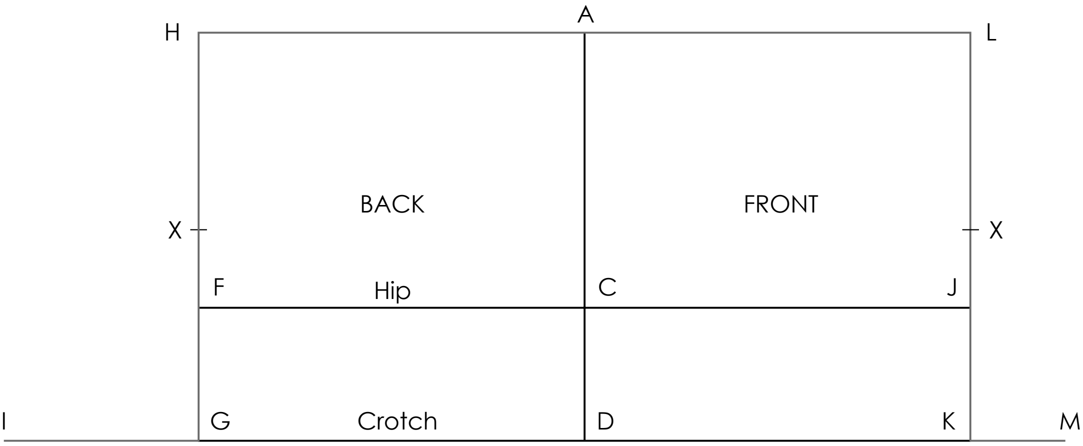

A
H
L
BACK
FRONT
X
X
F
Hip
C
J
I
G
Crotch
D
K
M

Figure 3

Back Dart Intake (or use personal darts)

H–N = 3/4 inch. Mark.
N–O = waist measurement, plus 2 1/4 inches.
N–P = 3 inches. Mark 1-inch intake for each dart and space 1 1/4 inches apart.

Mark centers of each dart and square down 4 1/2 inches.

Front Dart Intake (or use personal darts)

L–Q = waist measurement, plus 1 1/4 inches.
L–R = 3 inches. Mark 1/2-inch intake for each dart and space 1 1/4 inches apart.

Mark centers of each dart and square down 3 inches.

Figure 3

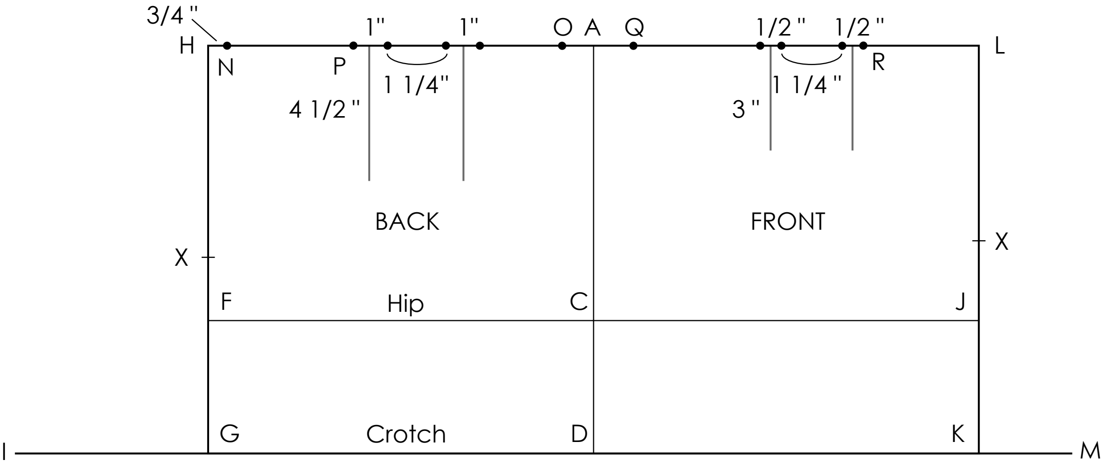

3/4"
H
N
1"
P
1"
O
A
Q
1/2"
1/2"
R
L
1 1/4"
4 1/2"
1 1/4"
3"
BACK
FRONT
X
X
F
Hip
C
J
I
G
Crotch
D
K
M

Figure 4

Back

N–S = 1/4 inch squared up from N.

Draw line from S to X to crotch level.

G–T = 2-inch diagonal line (less 1/8 to 1/4 inch for sizes under 10).

Draw the crotch curve from I to X, touching or blending at T.

Front

K–U = 1 1/2-inch diagonal line.

Draw the crotch curve from M to X, touching or blending at U.

Figure 4

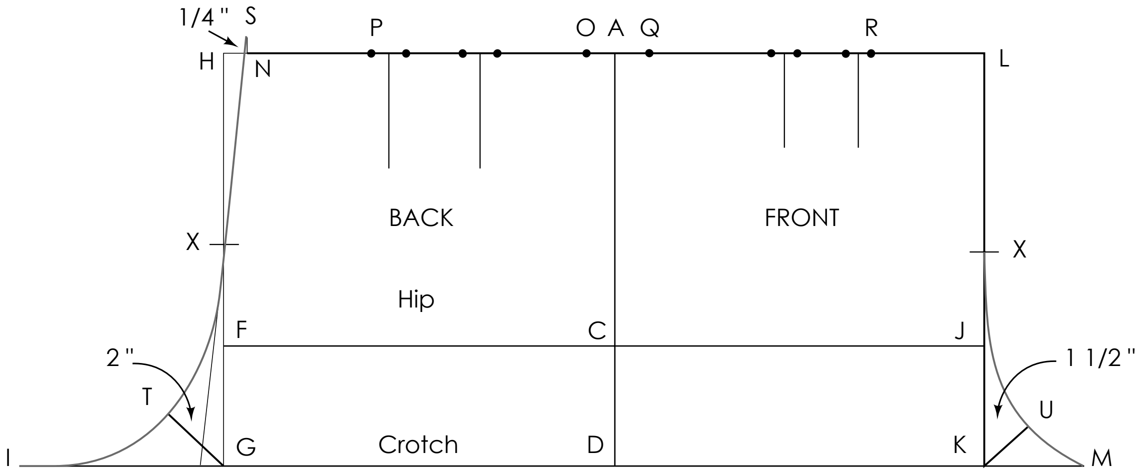

1/4"
S
H
N
P
O
A
Q
R
L
BACK
FRONT
X
X
Hip
F
C
J
2"
1 1/2"
T
U
I
G
Crotch
D
K
M

Figure 5 Back and Front Waistlines

- Draw a slight inward curved line from S to O.
- Draw a slight inward curved line from 1/4 inch below L to Q.
- Draw dart legs to the waistline and true by adding to shorter legs.
- Draw hip curves just above C to O and to Q.

Figure 5

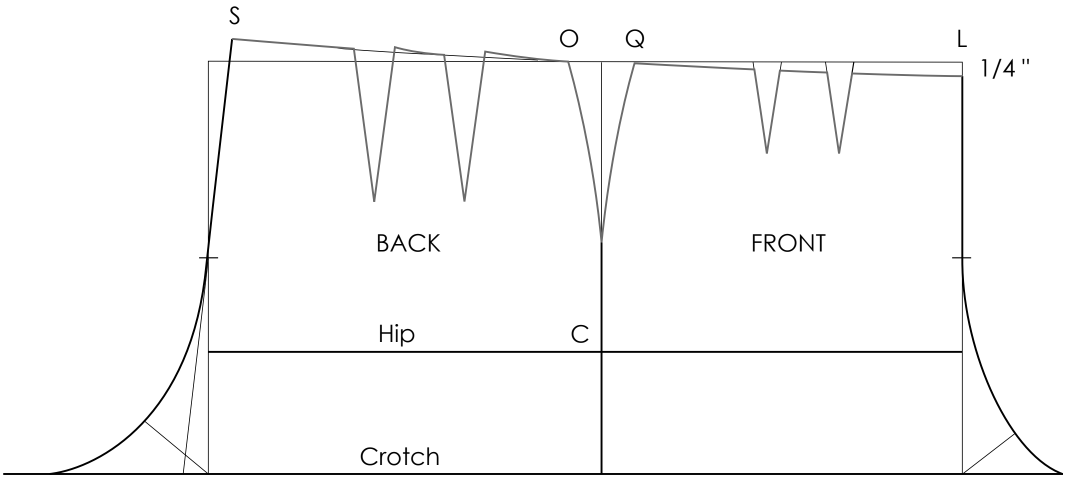

S
O
Q
L
1/4"
BACK
FRONT
Hip
C
Crotch

Figure 6

Back

D–V = one-half of D–I, plus 1/4 inch. Square up and down from V (grainline).

Front

D–W = one-half of D–M, plus 1/4 inch. Square up and down from W (grainline).

- Mark hemline widths (1/2 inch less for sizes under 10). Adjust at fitting.
- *Outseams:* Draw straight lines from ankle marks to C (blend with hipline).
- *Inseams:* Mark 1/2 inch in from M and L and draw straight lines to ankle marks. Draw inward curved lines from I and M, blending close to knee level.
- Walk the seams, blend, and add seam allowance. For instructions, see section completing the Pant Pattern section later in this chapter.
- To develop a waist band, see Waist Band subsection later in this chapter. For fly and zipper, see Attaching the Zipper section later in this chapter.

Figure 7

- Option: Equalize side hipline.
- Measure the distance between O and Q. Divide in half and mark out from A equally. Draw an adjusted side seam. Broken lines depict the original side seam.

Figure 7

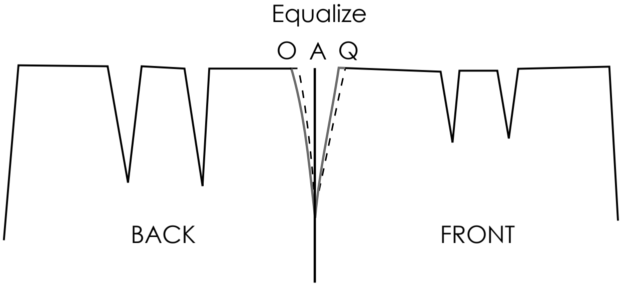
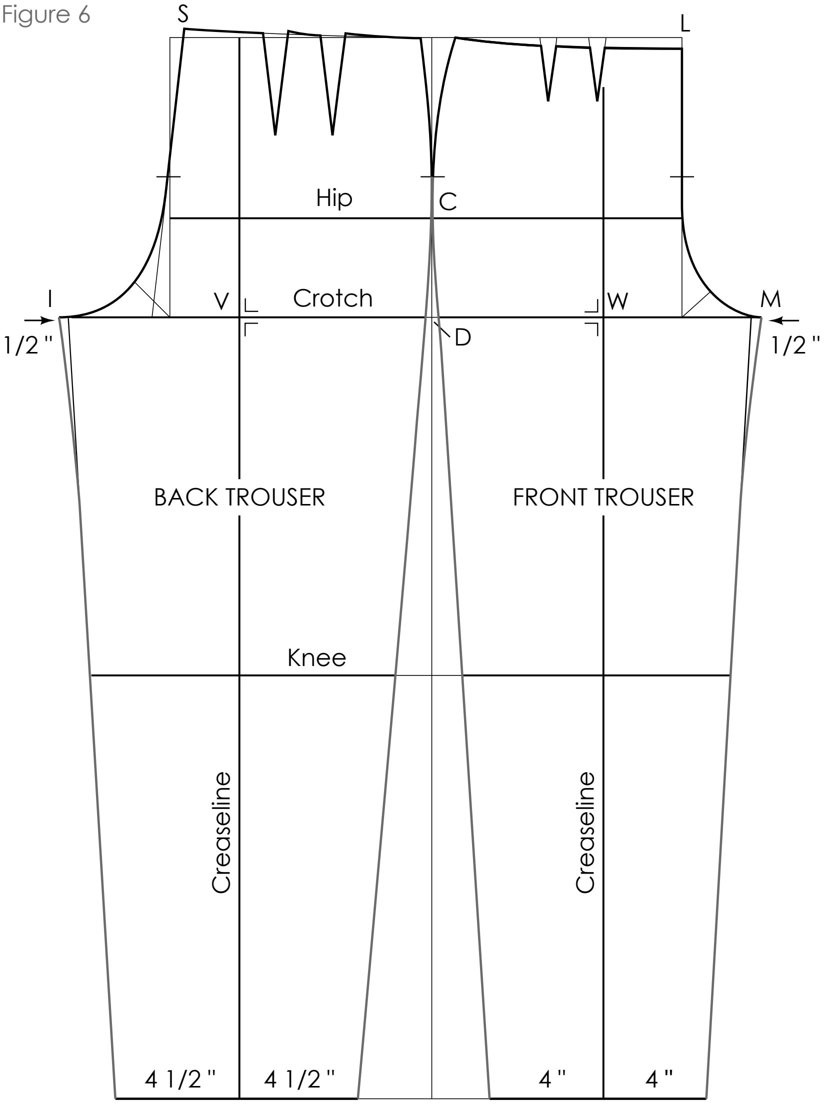

Equalize
O
A
Q
BACK
FRONT

Figure 6


S
L
Hip
C
I
V
Crotch
W
M
1/2"
D
1/2"
BACK TROUSER
FRONT TROUSER
Knee
Creaseline
Creaseline
4 1/2"
4 1/2"
4"
4"

SLACK—FOUNDATION 3

The slack foundation fits closer to the figure than does the trouser because of shorter crotch extensions. The shortened extension causes a slight cupping under the buttocks, creating the slack's unique fit. Pant designs based on the slack have a classic appeal to most women, especially those who are uncomfortable in the loose trouser and the contour-fitted jean. The slack foundation is very versatile. It may be worn as drafted or adapted to countless other pant designs (see "Pant Designs"). It is a popular base for pant derivatives, such as the short, the Jamaica, and the pedal-pusher, to name a few. Tab Pant Fit Problems/Corrections section later in this chapter, for a fitting guide.

Slack Draft

Figures 1, 2

- Trace the front and back trouser, omitting darts closest to the side seam. Modify the pattern using illustration and measurements as a guide.
- Shaded areas indicate parts of the pattern that are cut away.
- Broken lines indicate original pattern shape.
- Bold lines indicate slack foundation.
- Walk seams and add seam allowance.

Figure 1

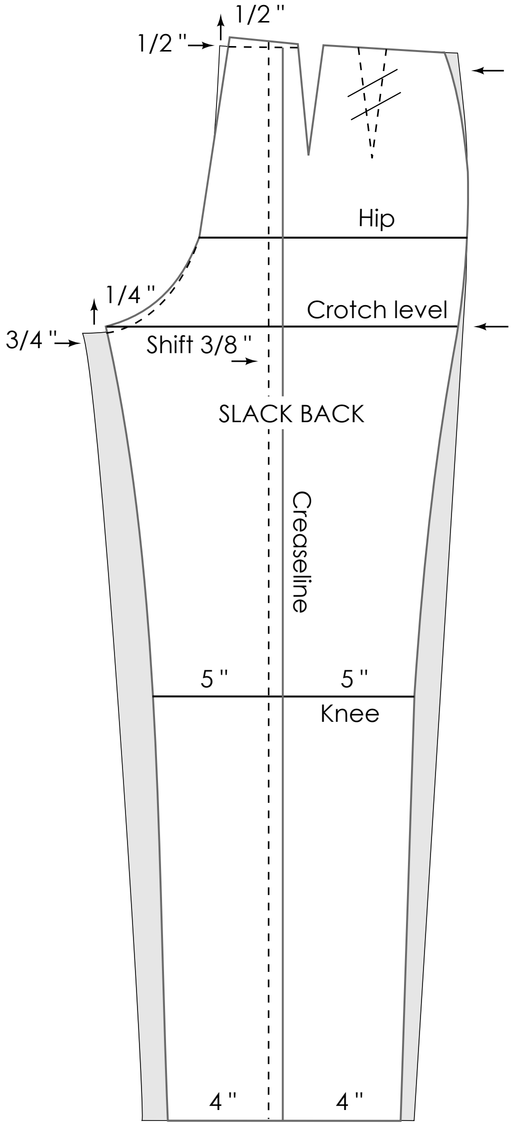
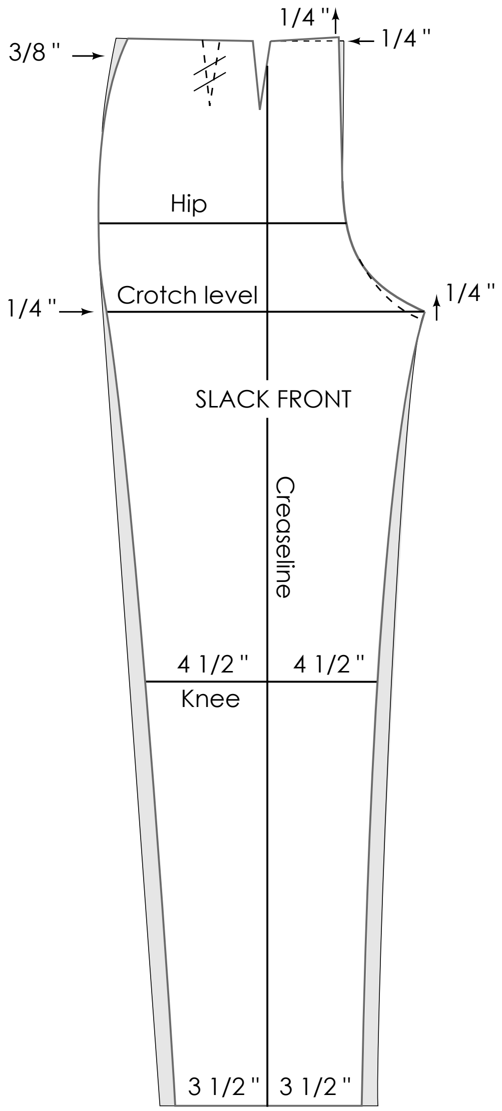

1/2"
1/2"
Hip
1/4"
3/4"
Crotch level
Shift 3/8"
SLACK BACK
Creaseline
5"
5"
Knee
4"
4"

Figure 2


1/4"
1/4"
3/8"
Hip
1/4"
Crotch level
1/4"
SLACK FRONT
Creaseline
4 1/2"
4 1/2"
Knee
3 1/2"
3 1/2"

JEAN—FOUNDATION 4

The jean foundation is drafted with a short front and back crotch extension for pants that contour the figure. The shortened extension results in a loss of crotch length; therefore, the center back draft is extended (pitched) beyond the waist level to make up the crotch length measurement (see the Personalize Jean Contour Fit section, Figures 2a and 2b, later in this chapter).

The jean foundation is as versatile as other pant foundations. It may be used as drafted or modified for a personal fit (see “Pant Designs”) for the casual-fitting jean, bell-bottom, flare, wrangler, and boot pant. It is also a common base for the short, Jamaica, and other pant derivatives.

Measurements needed are found in the Measuring for Pant Draft section earlier in this chapter. Tab Pant Fit Problems Corrections section later in this chapter.

Measurements Needed

- (27) Waist to ankle ___
- (24) Crotch depth ___
- (23) Front hip arc ___
  Back hip arc ___
- (19) Front waist arc ___
  Back waist arc ___

Special measurement for a personal fit, ahead two pages.

- (29) Upper thigh plus 1-1/4" ___

Jean Draft

Figure 1

A–B = waist to ankle (pant length.)

A–D = crotch depth. (Subtract 1/4 inch for higher crotch.)

D–C = hip depth: one-third of D–A.

B–E = knee depth: one-half of B–D plus 1 inch (toward D). Square out from both sides of A, B, C, D, and E.

Figure 1

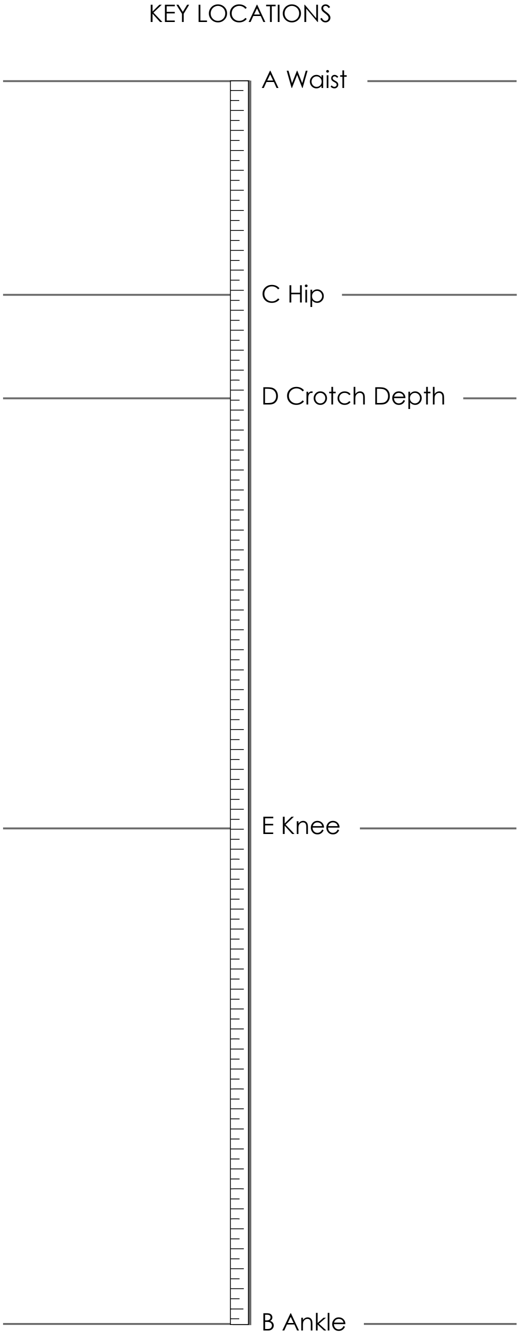


Figure 2

Back

C–F = back hip, plus 1/8 inch (ease).

D–G = same as C–F.

A–H = same as C–F.

Connect G with H.

G–X = one-half of G–H.

G–I = one-fourth of hip G-D for a contour fit. Add 1 inch more to the measurement for a relaxed fit.

Front

C–J = front hip, plus 1/8 inch (ease).

D–K = same as C–J.

A–L = same as C–J.

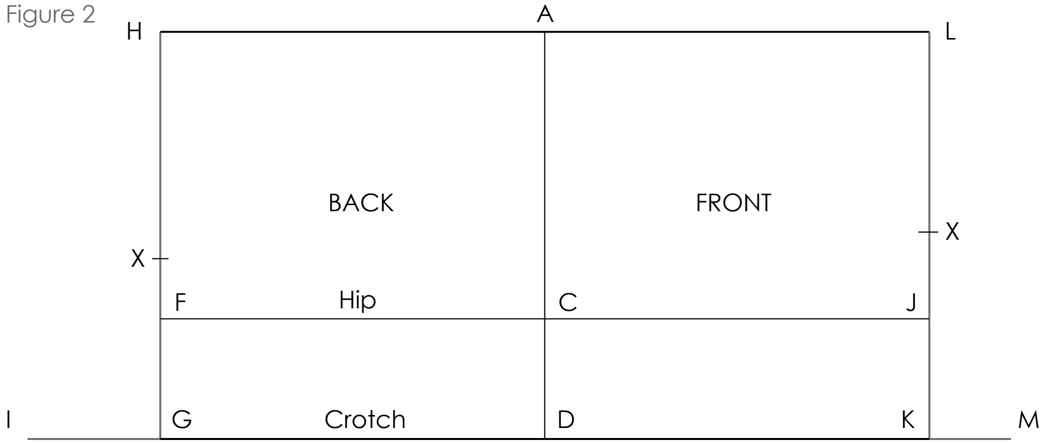
Connect K with L.

K–X = One-half of K–L plus 1/2 inch (toward L).

K–M = 2 inches.

Add 1/4 inch for sizes over 14; subtract 1/8 inch for sizes under 10.

Figure 2


H
A
L
BACK
FRONT
X
X
F
Hip
C
J
I
G
Crotch
D
K
M

Waist and Dart Intake

If points O and R meet or overlap point A, don’t be alarmed. Adjustment will be made later.

Figure 3

Back

H–N = 1 3/4 inches.

N–O = back waist arc, plus 1 inch (dart and ease included).

N–P = one-half of N–O.

Square down 3 1/2 inches from P.

Measure out 3/8 inch from each side of P, and mark.

Front

L–Q = 1/2 inch.

Q–R = front waist arc, plus 3/4 inch (dart and ease included).

Q–S = 3 1/4 inches.

Square down 2 1/2 inches from S.

Measure out 1/4 inch from each side of S and mark.

Figure 3

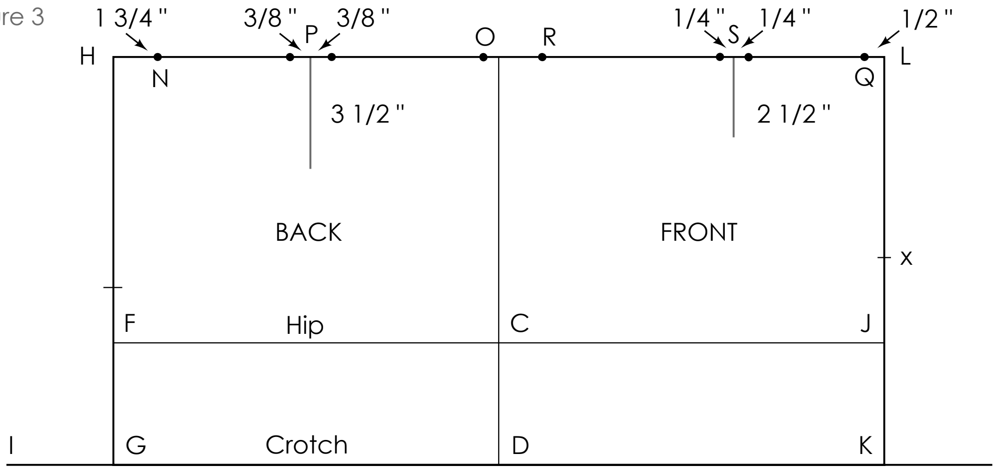

1 3/4 "
3/8 "
P
3/8 "
O
R
1/4 "
S
1/4 "
1/2 "
H
N
L
Q
3 1/2 "
2 1/2 "
BACK
FRONT
x
F
Hip
C
J
I
G
Crotch
D
K

Figure 4

Back

N–T = 1 inch squared up from N.
Draw line from T through X to crotch level.
G–g = 1 3/4-inch diagonal line.
Draw a curve with a ruler touching X and g, at or near I. Blend at g, if necessary.

Front

Q–U = 1/4 inch squared up from Q.
Draw a line from U through X to crotch level.
K–k = 1 1/4-inch diagonal line.
Draw a curve with a ruler touching X, k, and M. Blend at k, if necessary.

Figure 4

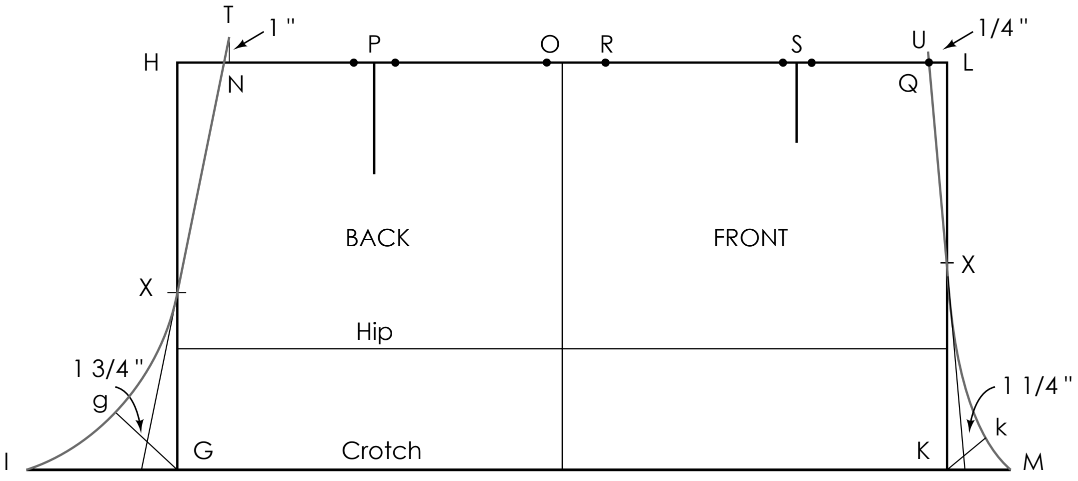

T
1"
P
O
R
S
U
1/4"
H
N
L
Q
BACK
FRONT
X
X
Hip
1 3/4"
g
1 1/4"
k
I
G
Crotch
K
M

Figure 5 Back and Front

- Draw slightly curved line from T to O and U to R.
- Draw dart legs from dart points to curve of the waistline.
- True dart legs by adding to the shorter leg. Blend with the side waist.
- Draw hip curves just above C to O and C to R. (If O and R marks overlap, go to Figure 7 for a guide, then return to Figure 6.)

Figure 5

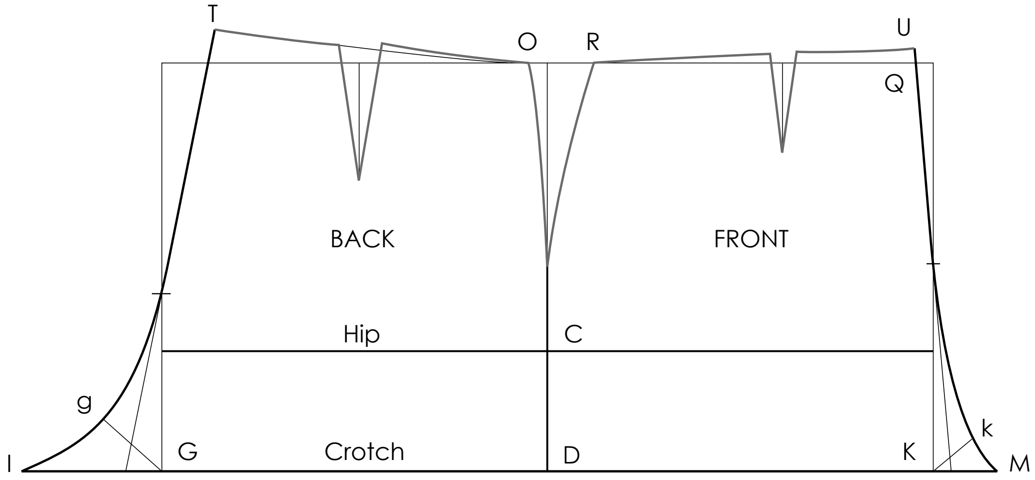

T
O
R
U
Q
BACK
FRONT
Hip
C
g
k
I
G
Crotch
D
K
M

Figure 6

Back

D–V = 3/8 inch. Mark.

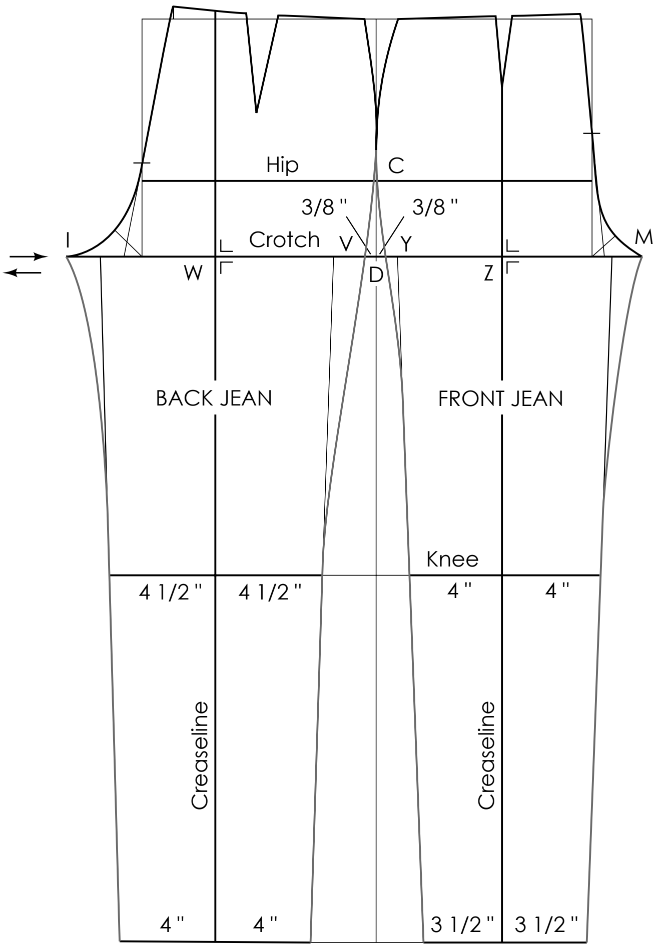
V–W = one-half of V–I.

Square up and down from W (grainline).

Legline

- *Personal Fit:* Record upper thigh measurement plus 1-1/4" = _______. Measure crotch level (M to Y and V to I = ______). If the upper thigh measures more or less than this measurement, move crotch point I until correct thigh measurement is reached. Redraw crotch, blending a smooth curve with X. Continue with leg line development.
- *Legline shape:* Use measurements for pant width at knee and ankle (adjust at the fitting). Hips 44 inches or more: Add 3/4 inch to the measurements. Use curve rule (skirt or hem rule) to shape the inseam and outseam, as illustrated.

Figure 6


Hip
C
3/8 "
3/8 "
Crotch
V
Y
I
M
W
D
Z
BACK JEAN
FRONT JEAN
Knee
4 1/2 "
4 1/2 "
4 "
4 "
Creaseline
Creaseline
4 "
4 "
3 1/2 "
3 1/2 "

Front

D–Y = 3/8 inch. Mark.

Y–Z = one-half of Y–M.

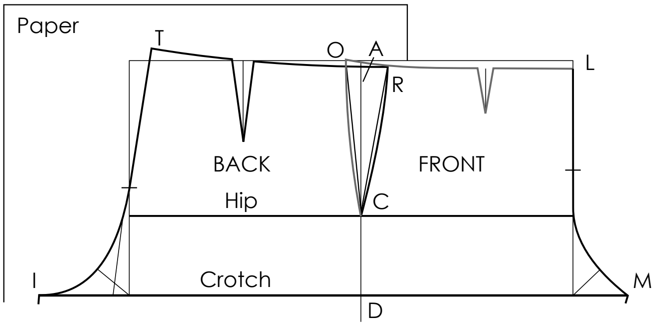
Square up and down from Z (grainline.)

Figure 7 O and R Overlaps Point A

Use a red pencil to shape the front hip.

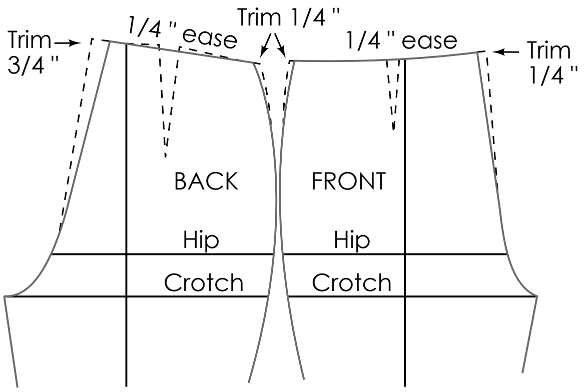
- Draw hipline curves from C to R (back pant) and C to O (front pant—blue line) equal to R–C. Blend C, if necessary, when side seams are drawn. Return to Figure 6 for continued instructions.
- After draft is complete, place paper under draft and trace back pant (C to R) before cutting the front pant.

Figure 7


Paper
T
O
A
R
L
BACK
FRONT
Hip
C
I
Crotch
M
D

Dartless Jean Pant

Use the following illustration as a guide for eliminating waist darts. (Broken lines are original pattern.)


Trim 3/4 "
1/4 " ease
Trim 1/4 "
1/4 " ease
Trim 1/4 "
BACK
FRONT
Hip
Hip
Crotch
Crotch

- Walk seams and add seam allowance. For instructions, see Completing the Pant Pattern ahead two pages. For Fly, See Seam Allowance section later in this chapter. For Zipper, see Attaching the zipper section later in this chapter. For fit guide, see Pant Fit Problems/Corrections section later in this chapter.

Personalize Jean Contour Fit

Figure 1

Personal fit: Measure around upper thigh and add 1 1/2 inches: _______.

Measure crotch levels A to B and C to D: _______.

If the crotch level is more or less than the upper thigh measurement, extend or reduce the length of point A so that measurements agree. Reset the grainline. See Figure 3.

Check Crotch Length: Measure the crotch length and compare with your personal measurement. If additional length is needed, see Figure 2. Reverse the process to reduce crotch length.

Adjustments: Slack and Trouser Foundations

Slack Foundation

- To increase the crotch length, divide the needed amount equally between pitching the back pant (Figure 2) and adding to the back crotch point. Adjust the creaseline; see Figure 3. To decrease, reverse the process.

Trouser Foundation

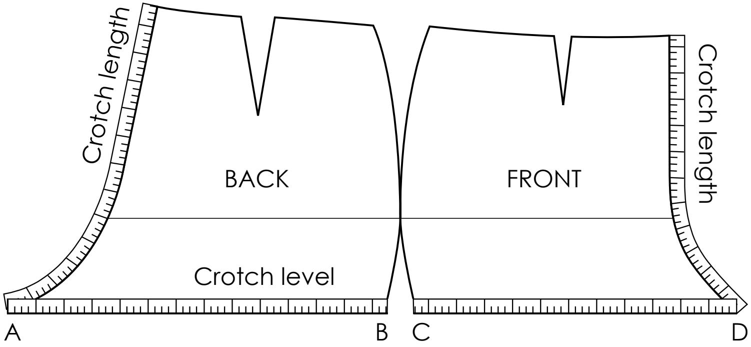
- To increase the crotch length, add the needed amount equally to the front and back crotch points. To decrease, reverse the instruction.

Adjustments: Crotch Length and Crotch Level

Figure 3

An example of an adjusted pattern with the grainline shifted to balance the pattern.

Figure 1


Crotch length
BACK
FRONT
Crotch length
Crotch level
A
B
C
D

Pitching the Back Pattern

Figures 2a, b

- To increase crotch length, slash or pivot at the HBL to the side seam and pitch upward the needed amount (a). Slip paper underneath, mend, and blend (b).
- To decrease the measurement, reverse the process.

Figure 2a

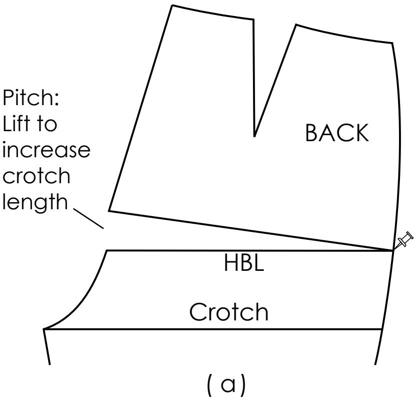

Pitch:
Lift to
increase
crotch
length
BACK
HBL
Crotch
(a)

Figure 2b

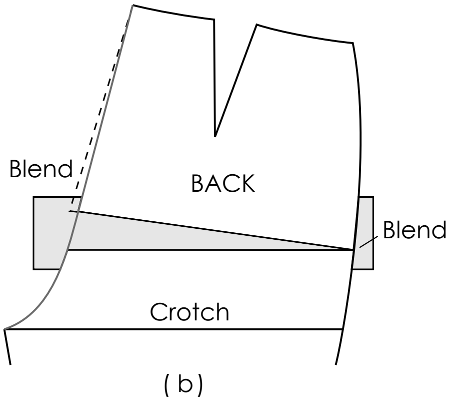
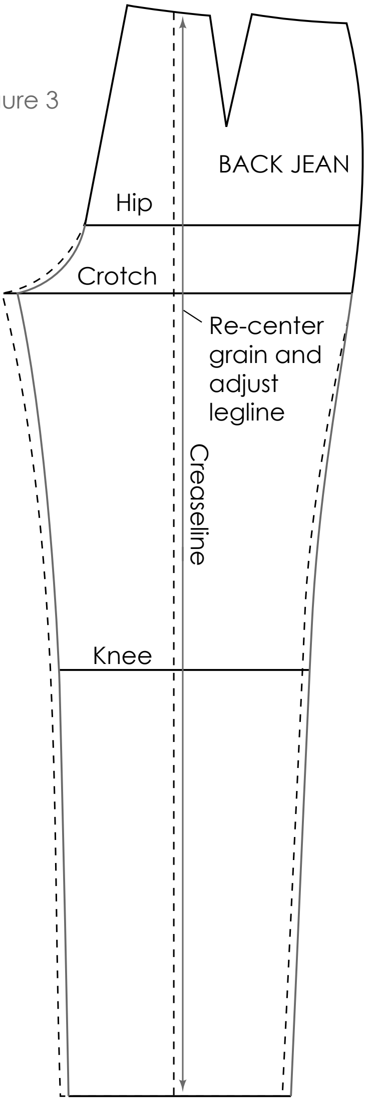

Blend
BACK
Blend
Crotch
(b)

Figure 3


BACK JEAN
Hip
Crotch
Re-center
grain and
adjust
legline
Creaseline
Knee

COMPLETING THE PANT PATTERN

Joining seams must be walked and trued before cutting the garment. The following instructions apply to the pant foundation and to all pant design patterns.

How to Balance the Pant Patterns

To balance the pant, walk the patterns starting from the hemline to the crotch points and to the waistline. Use a push pin to help control the pant as the seams are walked. Equalize and blend the differences on the legline shape of the inseams and outseams. Knee guidelines will not match.

Figures 1a, b Matching Inseams

- Cut the front pant from paper.
- Place the front pant on top of the back pant, starting at the hem of the inseams, and walk seams to the crotch point.
- The back inseam may be longer than the front inseam (Figure 1a).
- Mark and redraw a blending curve line of the back crotch (shaded area in Figure 1b).
- Trim an additional 1/2 inch and stretch when stitching inseam.

Figure 1a

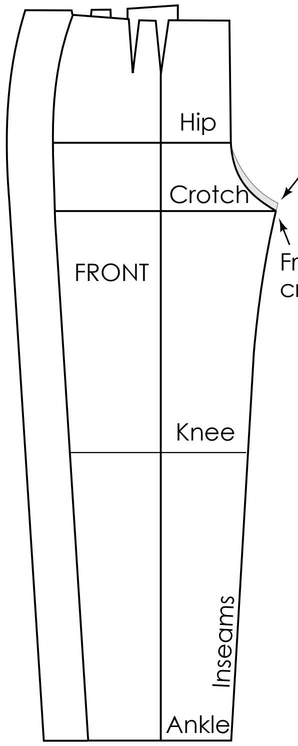
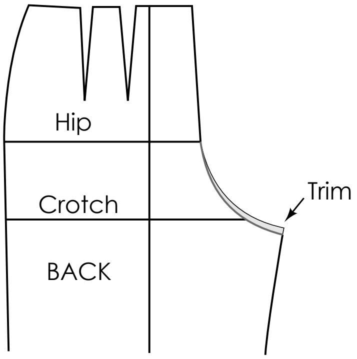

Hip
Back crotch point
Crotch
Front crotch point
FRONT
Knee
Inseams
Ankle

Figure 1b


Hip
Crotch
Trim
BACK

Figures 2a, b Matching Outseams

- Walk the outseams (side seams) from the hem to the waist. The side seams may not match (Figure 2a).
- To correct, add to the shorter side or equalize and blend with the waistline (Figure 2b).

  Go to next page for further instruction.

Figure 2a

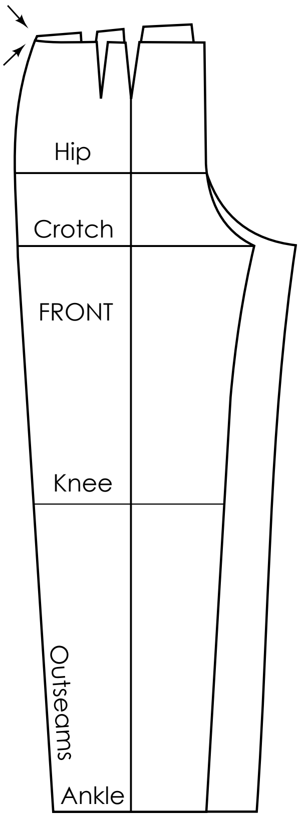
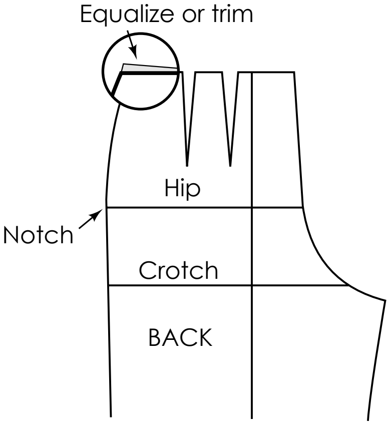

Hip
Crotch
FRONT
Knee
Outseams
Ankle

Figure 2b


Equalize or trim
Notch
Hip
Crotch
BACK

Seam Allowance

The pant foundations should remain seamless when used as a working pattern; however, experienced patternmakers generally work with seams. If seams are to be added to pant design patterns, extend lines out from each corner of the pattern as a guide for notching. Use the following seam allowances for test fitting and for pant design patterns. To test fit the basic foundation, add seams directly on the muslin.

Sewing Guide

Fly and waist band, refer to current page and Figure 2 in Pleated Trouser section later in this chapter.

Pocket with lining control, refer to Pocket Draft for Trouser section later in this chapter.

Correcting fit, refer to previous three pages.

Figures 3a, b

Add 1 inch (more or less) to the hem and 1/2 inch to all seams except for the zipper.

- *Fly zipper*—1 1/2 inches and 1/2 inch (fold-back) longer than the zippers. The fly can be separately placed on the right or left side of the center front.

Figure 4 Shield

The shield is 2 1/2 inches wide and 1 inch longer than the zipper. Add 1/2-inch seams.

Figure 5

For lap and rail-road zippers, add 3/4-inch seams to the center back, ending 1 inch longer than zipper; at this point, return seam to 1/2 inch (Figure 5).

Figure 3a

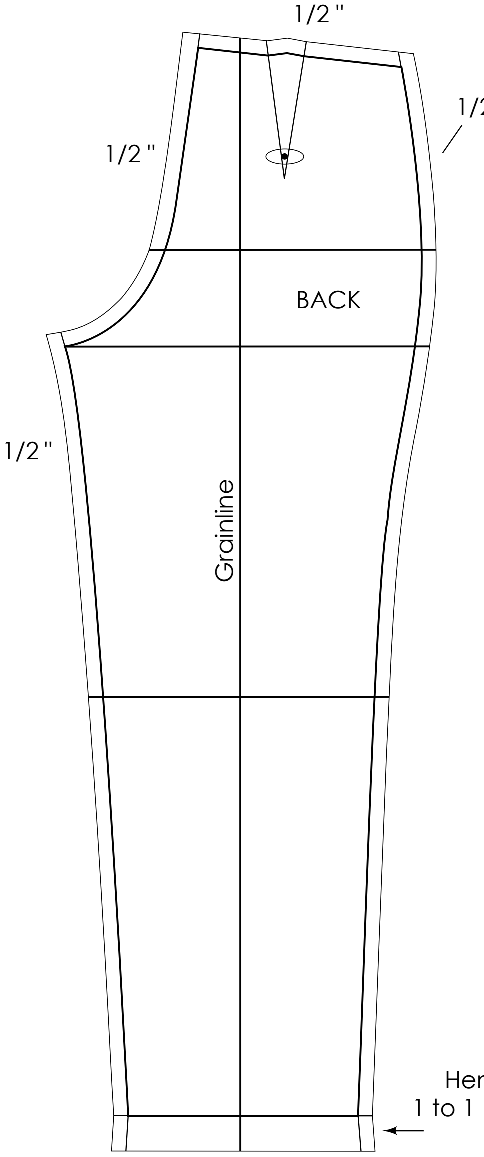
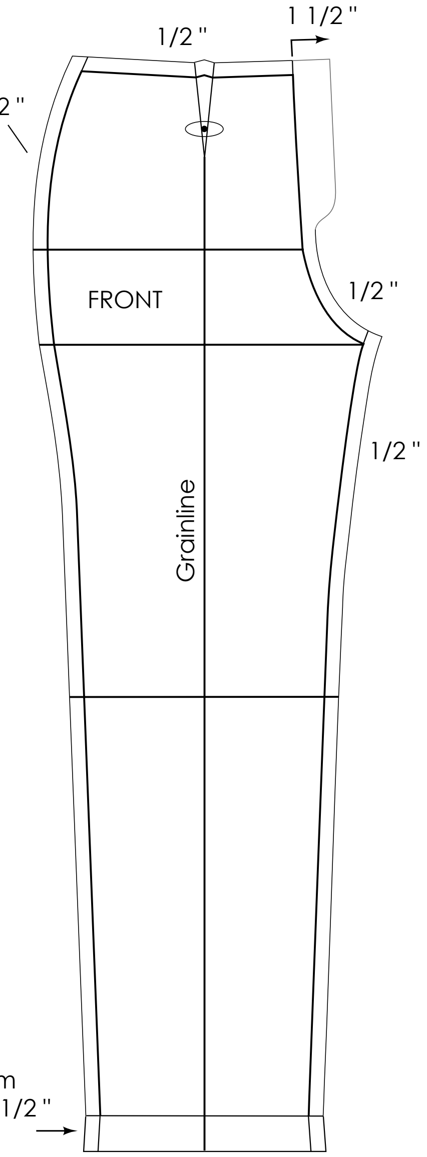


Figure 3b



Preparing for the Test Fit

Add seam allowances to the traced pant. Draw grainlines, hip, crotch, and knee guidelines. For fit guide, see Pant Fit Problems Corrections section later in this chapter.

Figure 4

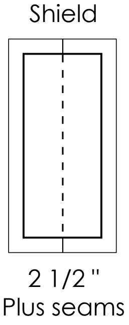
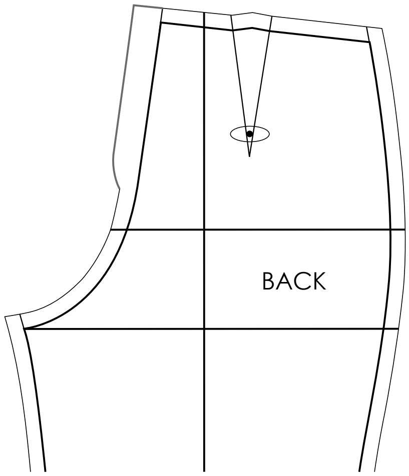


Figure 5

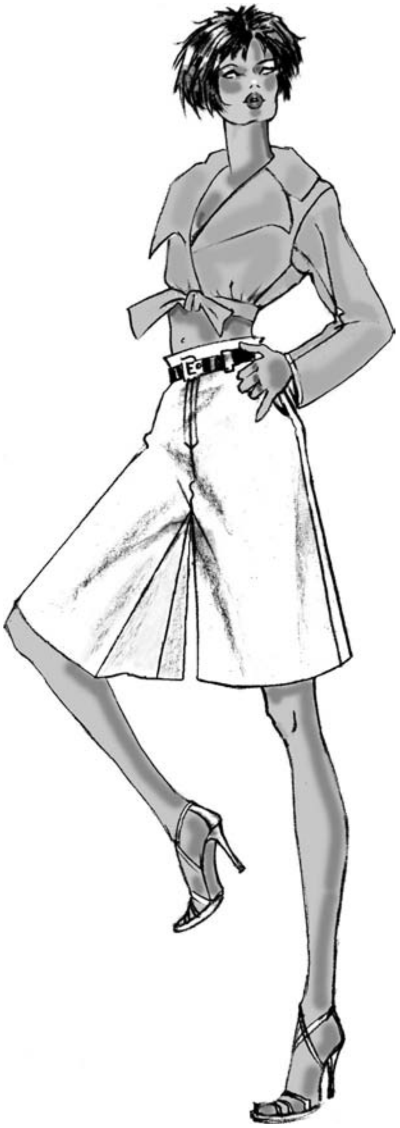


PANT DESIGNS

Box-Pleated Culotte

Design Analysis

The pant has a center front box pleat, stitched approximately 5 inches below the waist. The culotte back foundation completes the design. Additional flare is added to the center front extension to improve the hang of the pleat.



Pattern Plot and Manipulation

Figure 1

- Place center front culotte foundation on paper. Secure and square a guideline across the pattern.
- Trace center front, crotch extension, hem, and 2 1/2 inches of waistline. (Broken lines indicate part of the pattern not traced.) Label A and B.

Figure 2

- Shift pattern 5 inches along the guideline for pleat (pleat intake varies).
- Trace the remaining pattern, starting at the center front. Label C.
- Draw parallel lines from points A and C to hem. Connect C with B at waist and blend the hem.

Figure 1

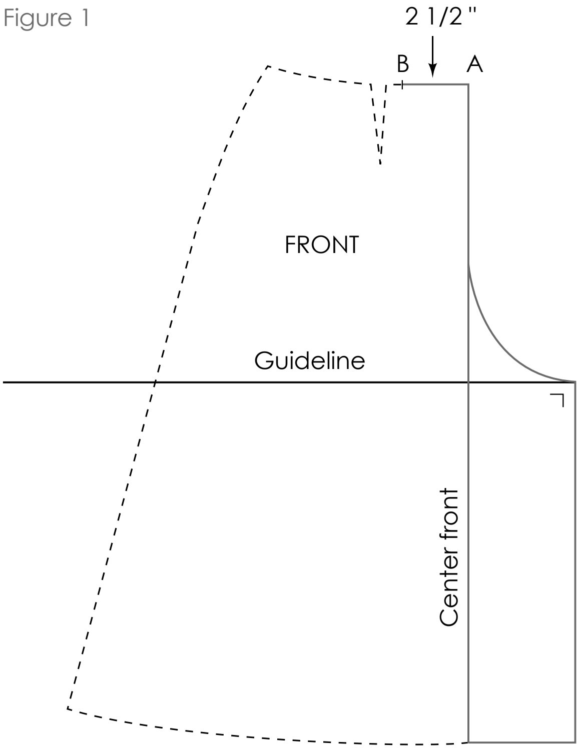


Figure 2

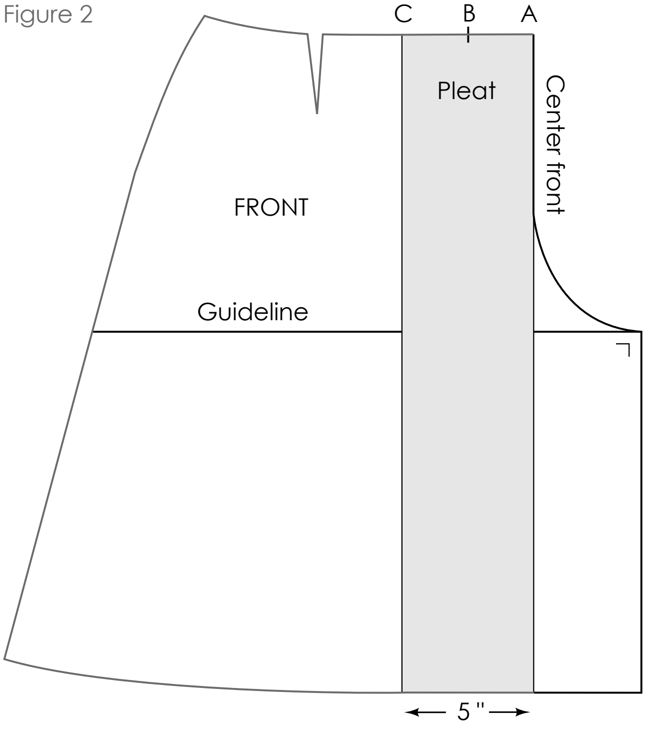


Figure 3

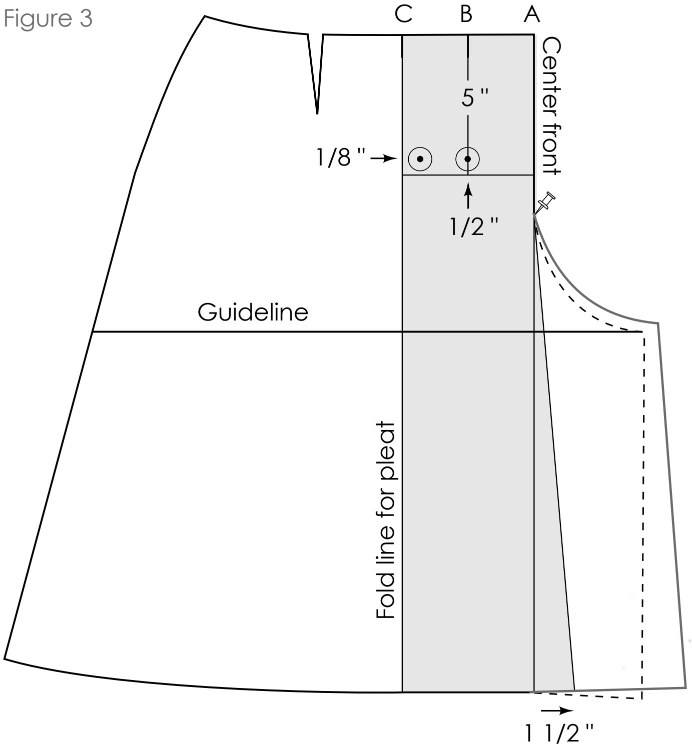


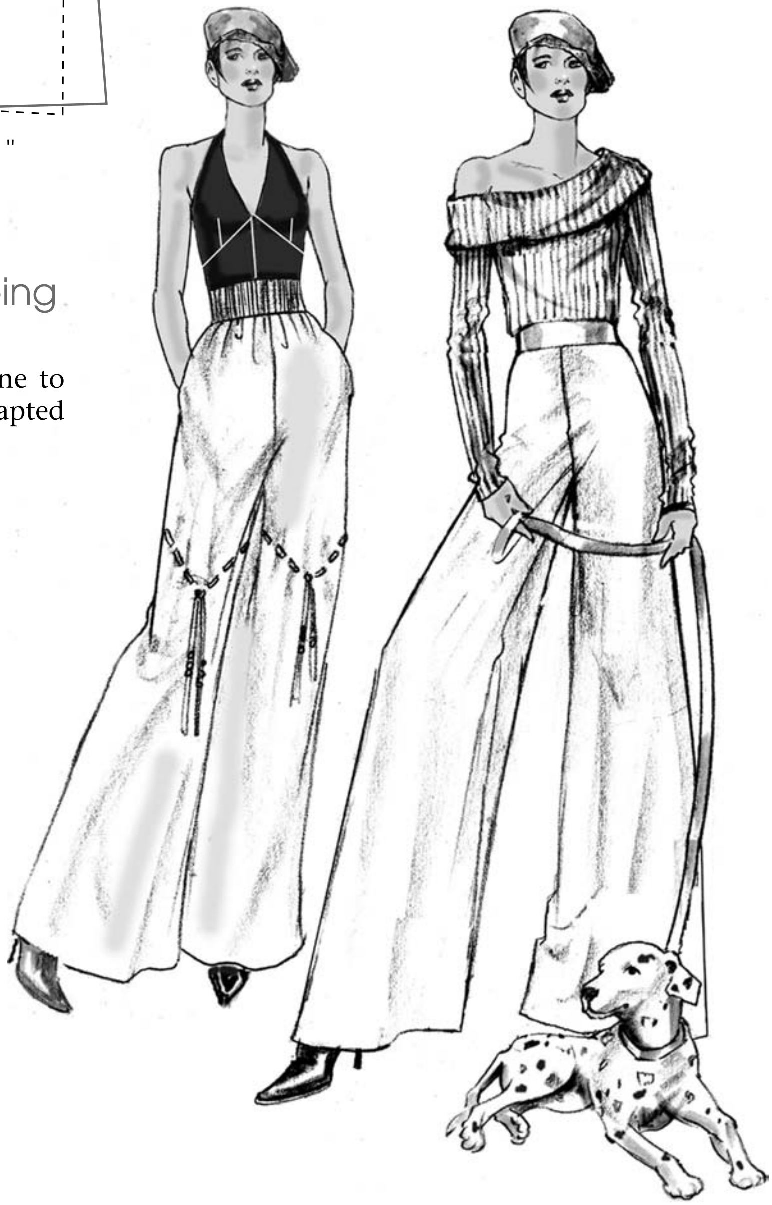
Figure 3

- *Pleat guidemarks:* Draw a 5-inch line down from B parallel with the center front. Punch and circle 1/2 inch up on line and 1/8 inch in from C line.
- *Option:* For additional flare at center front, place the culotte foundation on top of the traceoff. With a push pin at crotch curve, swing the pattern 1 1/2 inches away from the center front at the hem and trace. Blend the hemline.
- Trace the culotte back foundation to complete the design. (If a back pleat is desired, follow the instructions given for the front draft.)
- Draw the grainline and complete the pattern for a test fit.

Culottes with Long, Wide-Sweeping Hemlines

Trace the culottes pattern. Extend the hemline to the desired length. Other skirt styles can be adapted to this foundation:

- Flared skirt
- Gathered flare
- Gored skirt
- Yoke skirt
- Pockets
- Waist band
- Zipper



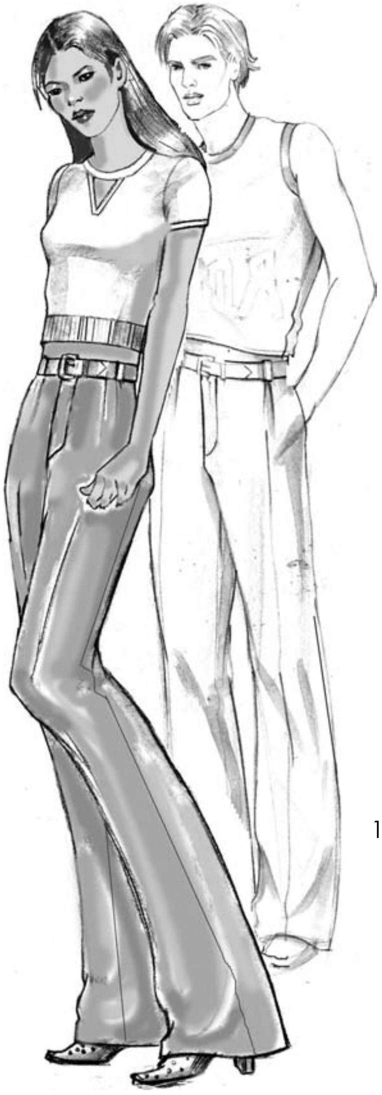
Pleated Trouser

The two-pleated trouser pant is based on the trouser foundation. If it is not available, see Trouser—Foundation 2 section earlier in this chapter.

Sewing instructions for the pocket, zipper, and waist band follow the completion of the pant and pocket drafts.

Pocket Preparation

Trace the front pant foundation from the waist to crotch level. Set aside for the pocket draft that follows the pant draft; see two pages ahead.



Pattern Plot and Manipulation

Figures 1a, b

- Trace the front and back trouser foundations. Taper the pant legs or shape the legline as desired (Figures 1a and 1b).
- Cut pant patterns from paper.

Pocket Entry Preparation

X–C = 1 3/4 inches.

X–D = 6 1/2 inches. Draw a line from C to D.

- Cut on creaseline from waist to hem.

Note: The waist darts may not fall in line as shown. This does not interfere with the instructions "to cut on the grainline and combine waist darts."

Figure 1a

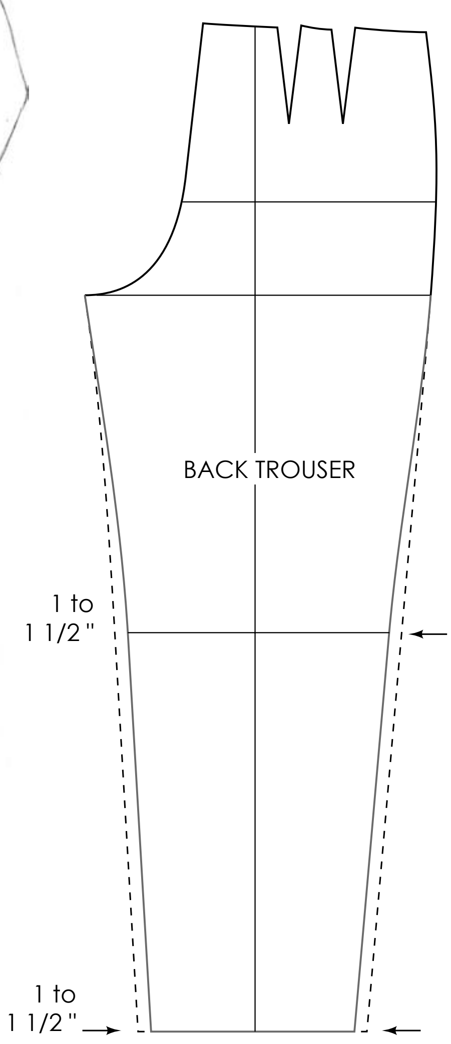
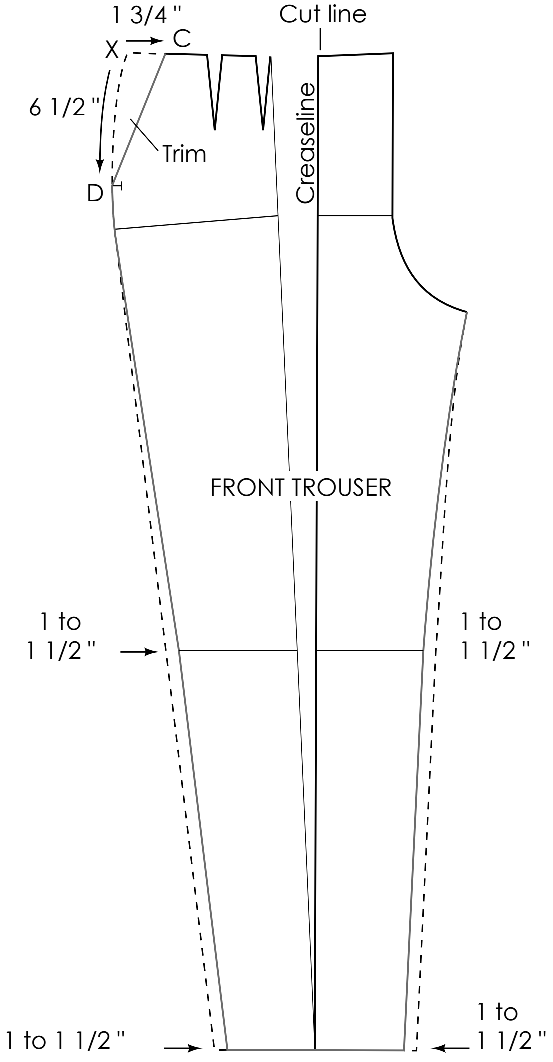

BACK TROUSER
1 to 1 1/2"
1 to 1 1/2"

Figure 1b


1 3/4"
X
C
Cut line
6 1/2"
Trim
D
Creaseline
FRONT TROUSER
1 to 1 1/2"
1 to 1 1/2"
1 to 1 1/2"
1 to 1 1/2"

Figures 2a, b, c

- *First pleat:* Spread 2 inches (shaded area). Trace, label, and mark the pleat notches.
- *Second pleat:* The second pleat combines both waist darts spaced 1 1/2 inches from the first pleat (shaded area). Slash and spread to add fullness to the second pleat if desired. Mark notches for the pleat intake (Figure 2a).
- Trace back trouser pant. Figure 2b.
- *Fly:* Draw fly 1 1/2 inches wide and 7 1/2 inches long on the right pant. The shield is stitched to the left pant. (Reverse for a masculine look.) To draft the shield, see Figure 2c.
- Fold the pleats to lengths indicated by the shaded areas. Run a tracing wheel across the folded pleats. Unfold. Add the seams and hemline.

Figure 2b

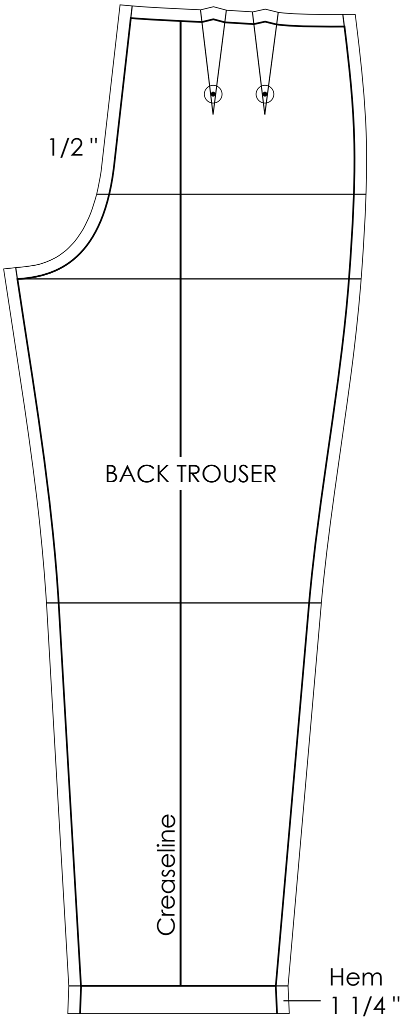

1/2 "
BACK TROUSER
Creaseline
Hem
1 1/4 "

Figure 2c

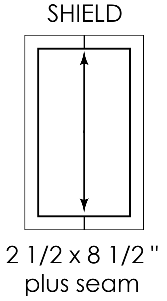
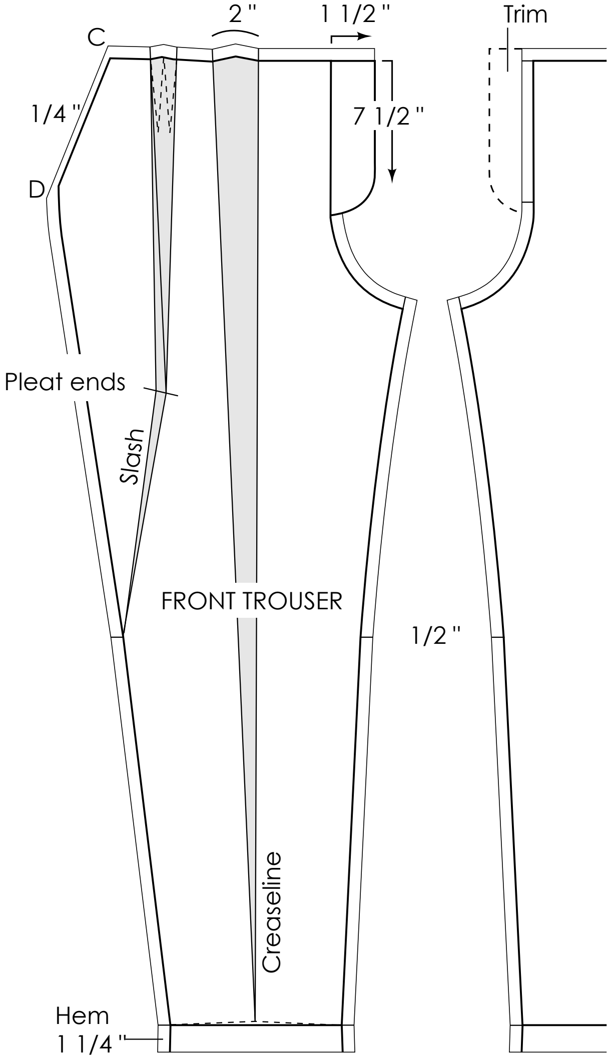

SHIELD
2 1/2 x 8 1/2 "
plus seam

Figure 2a


C
2 "
1 1/2 "
Trim
1/4 "
7 1/2 "
D
Pleat ends
Slash
FRONT TROUSER
1/2 "
Creaseline
Hem
1 1/4 "

Belt Loops

- Cut a pattern strip 3/4 inch wide and 13 1/2 inches long for six loops (instructions in Waist Band Loops section later in this chapter).

Waist Band

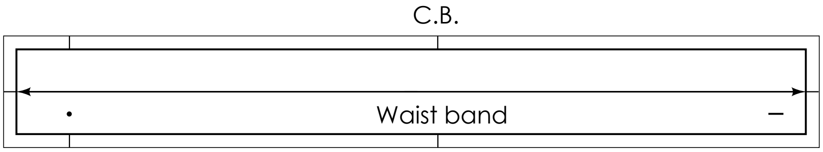
Figure 3

Length = waist measurement plus 1/2-inch ease and 1 1/4 inches for extension.

Width = 2 1/2 inches.

Add 1/2-inch seams. Notch extension and at the center back.

Figure 3


C.B.
Waist band

Pocket Draft for Trouser

Figures 4a, b

- Trace the trouser *foundation* to the crotch level. Draw a lining using the measurements given.
- Combine waist darts (A) and draw a line down to hem of the lining (B) (Figure 4a).
- Cut slash lines 1 1/2 inches down from dart point and up from B to create a hinge.
- Close the waist darts and tape to secure (Figure 4b).

Figure 4a

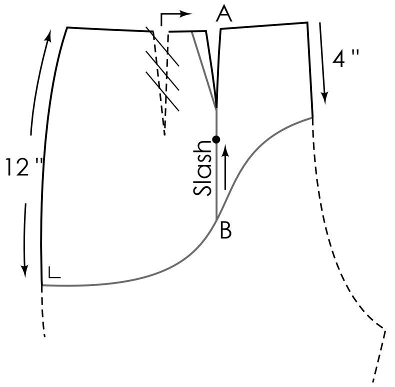
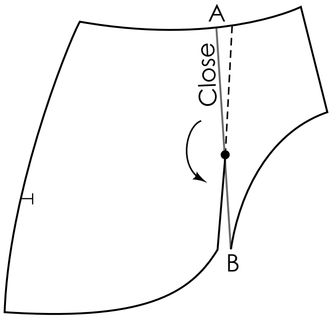

A
4 "
12 "
Slash
B

Figure 4b

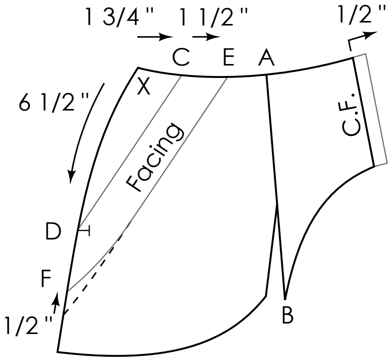


Plot the Pattern

Figure 5

X–D = 6 1/2 inches.
X–C = 1 3/4 inches.
Connect C to D.
C–E = 1 1/2 inches.
E–F = Line is parallel with C–D.
Raise F 1/2 inch and blend.

Figure 5

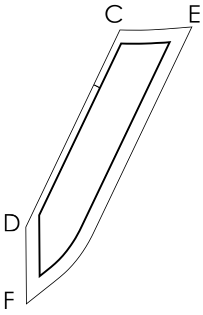

1 3/4 "
1 1/2 "
1/2 "
C
E
A
X
6 1/2 "
Facing
C.F.
D
F
1/2 "
B

Pocket Patterns

Figures 6a, b, c, d

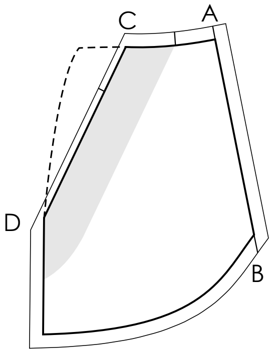
Trace the pocket patterns using letters from Figure 5: (a) facing, (b) pouch, (c) backing, (d) full lining. Add 1/2-inch seams, 1/4 inch at entry.

Figure 6a



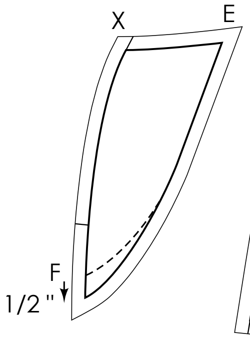
Facing

Figure 6b



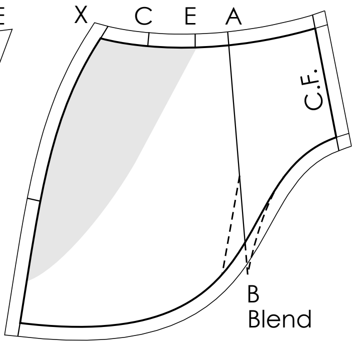
Pouch lining

Figure 6c



Backing

Figure 6d


X
C
E
A
C.F.
B
Blend

Full lining support

Cutting the Trouser Patterns

Preshrink all fabric associated with the pant before cutting and stitching the trouser. The amount of yardage needed depends on the width of the fabric, size of the pattern parts, and amount of garments to be cut.

To cut one garment, the patterns can be traced directly on the fabric, as illustrated. The grainline of the patterns are placed parallel to the selvage. Large pattern parts are laid first, and the remaining patterns are fit into the available spaces. The rule is to closely interlock the patterns to avoid wasting fabric. In the workroom or classroom, sample layouts also help to determine the amount of fabric needed for the project. A pattern's layout guide for lining and interfacing is given on the next page, Figures 9 and 10.

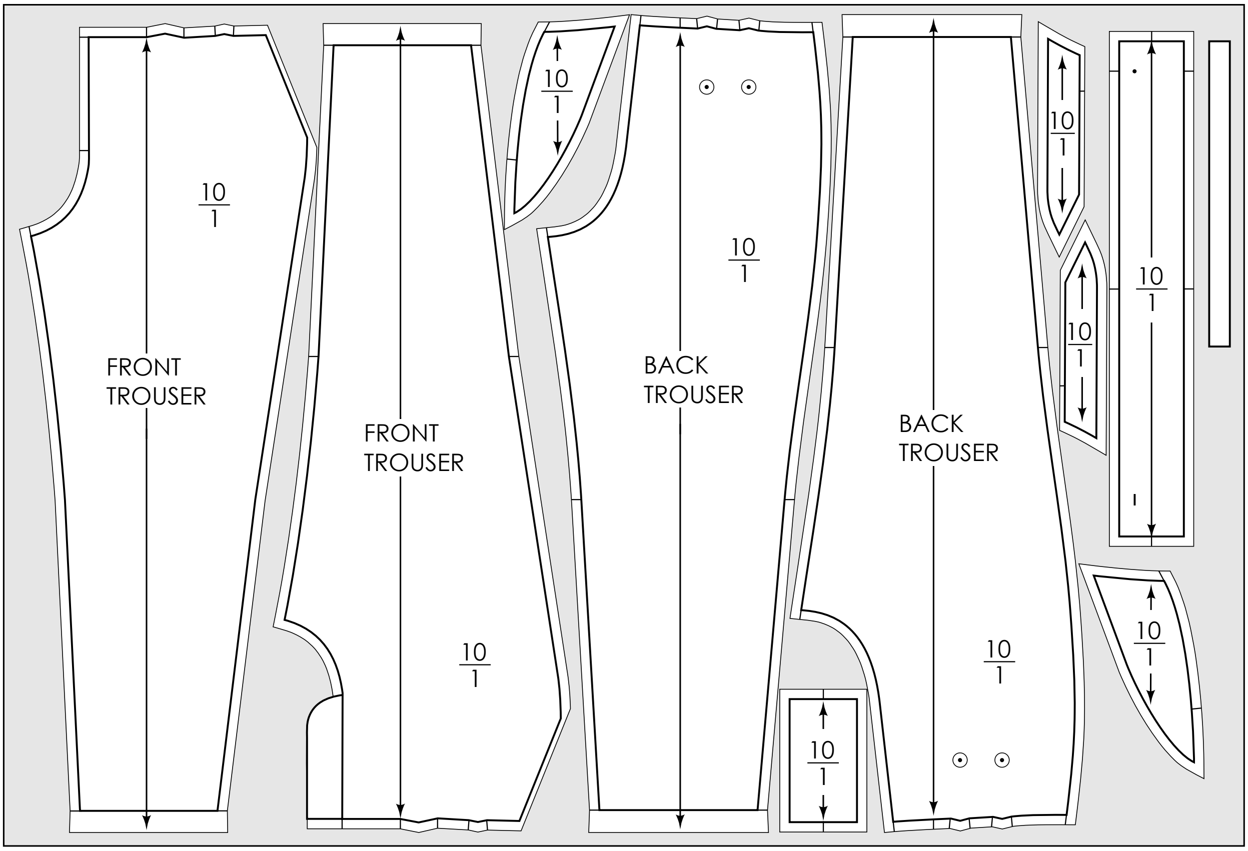
For fabrics with a nap surface, lay all patterns top-side-up to avoid shading. In industry, markers are usually generated by computers.

Fabric Width of 58 or More Inches

Figure 7

The fabric can accommodate all pant parts across the width of the goods. *Yardage needed* is one pant length, plus 1/8 yard. The pocket backing, facing, waist band, and belt loops are cut in "self"-fabric and are part of the marker. The pocket pouch and full lining is cut in the lining fabric of choice. Cut interfacing for the pocket facing, waist band, and fly.

Figure 7

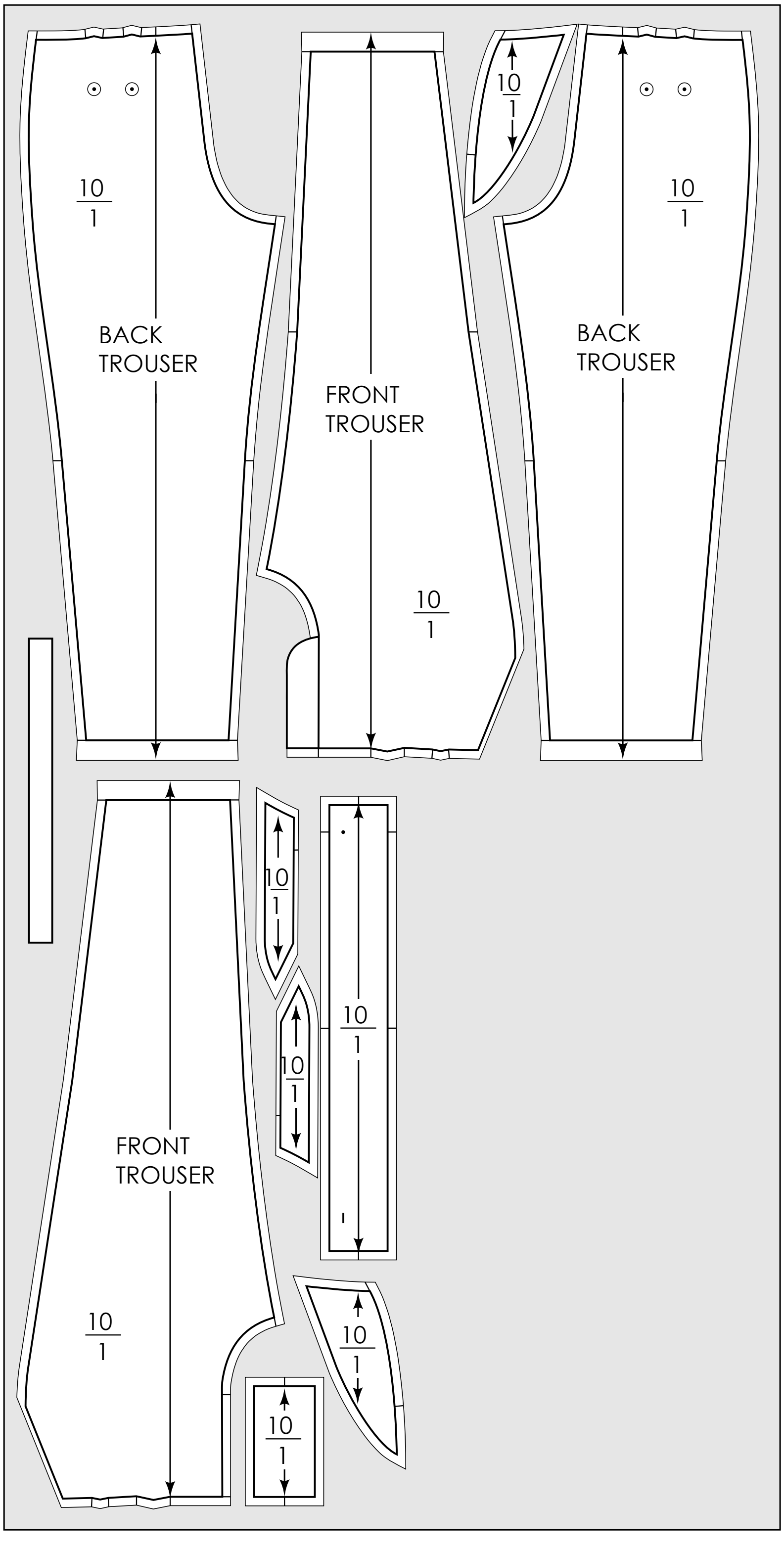


Fabric Width of 45 to 48 Inches

Figure 8

The width of the fabric accommodates three pant patterns across the goods. *Yardage needed* is two times pant length, plus 1/8 yard. The pocket backing, facing, waist band, and belt loops are cut in "self"-fabric and are a part of the marker. The leftover fabric can be saved for other uses.

Figure 8

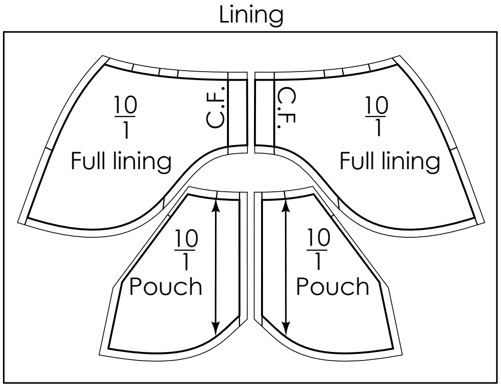

10
1
BACK
TROUSER
10
1
FRONT
TROUSER
10
1
10
1
BACK
TROUSER
10
1
10
1
10
1
10
1
FRONT
TROUSER
10
1
10
1
10
1

Lining Patterns

Figure 9

The pocket pouch and full lining are cut in lining (cotton, rayon blend, or self).

Figure 9

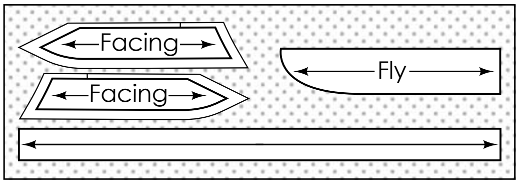

Lining
10
1
Full lining
C.F.
C.F.
10
1
Full lining
10
1
Pouch
10
1
Pouch

Interface the Following Patterns

Figure 10

Cut the interfacing to the seamline of the facing, backing, belt, and fly.

Figure 10


Facing
Facing
Fly

Interfacing

Figures 11a, b, c

Fuse the interfacing to the following patterns:

- Waist band from seam to fold line (Figure 11a)
- Pocket facing (Figure 11b)
- Fly to center line (Figure 11c)

Figure 11a

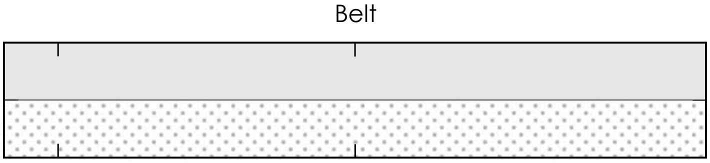


Figure 11b

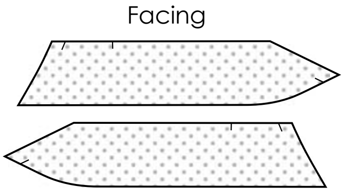
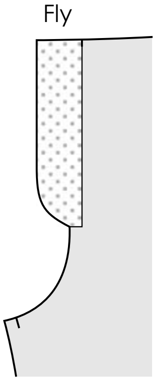


Figure 11c



Finishing Methods

There are a number of finishing methods for covering raw seams. The most common and economical method used in the fashion industry is overlocking (serge). Other stitching methods are the zigzag (as illustrated), clean-finished seams, lap seams, flat fell seams, and pinked seams.

Finishing the Pant, Facing, and Pocket Backing Seams

Figures 12a, b, c

Finish all seams except the waistlines, front pant outseams, and pocket entries (Figure 12a).

- *Facing and Backing*—finish the curved edges (Figures 12b and 12c).

Figure 12a

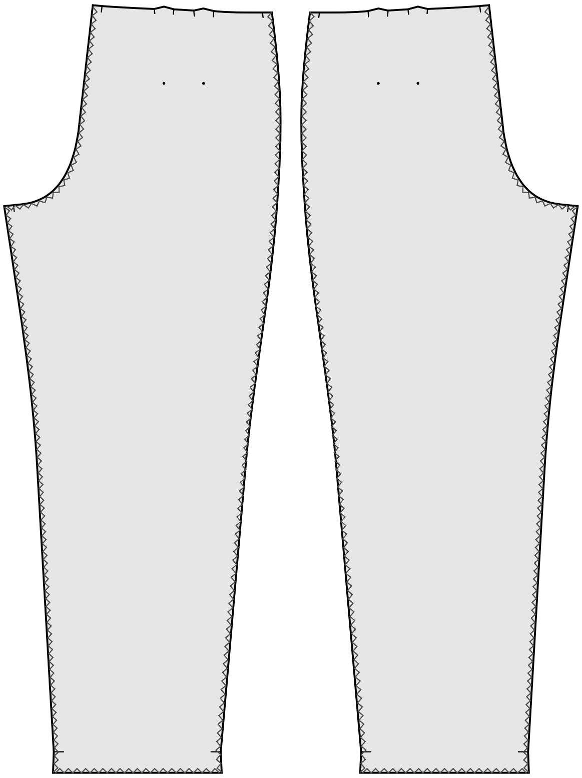


Figure 12b

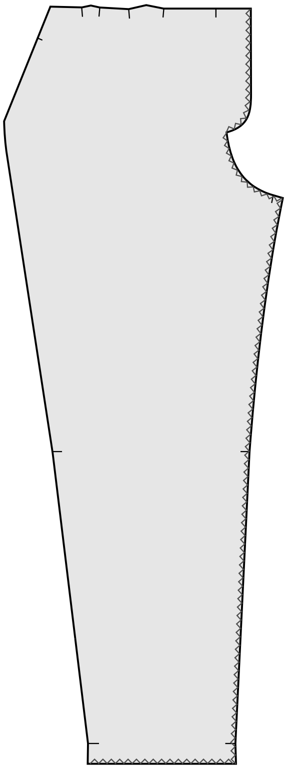
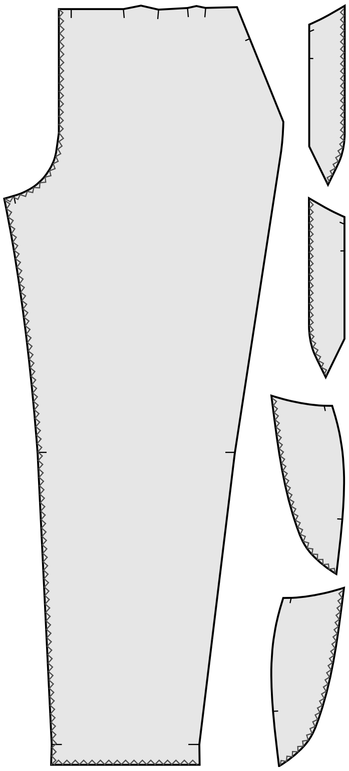


Figure 12c



Creaseline

Figure 13
Fold front and back pants centered on the straightgrain (right side). Press (creaseline).

Setting and Pressing the Pleats

Figure 14
Fold the pleats toward the side seams. Stitch across the waist. For stitched pleats, the first pleat folds to the hem and the second pleat to about mid-thigh. When folded, stitch 1 inch down each pleat, if desired.

Figure 13

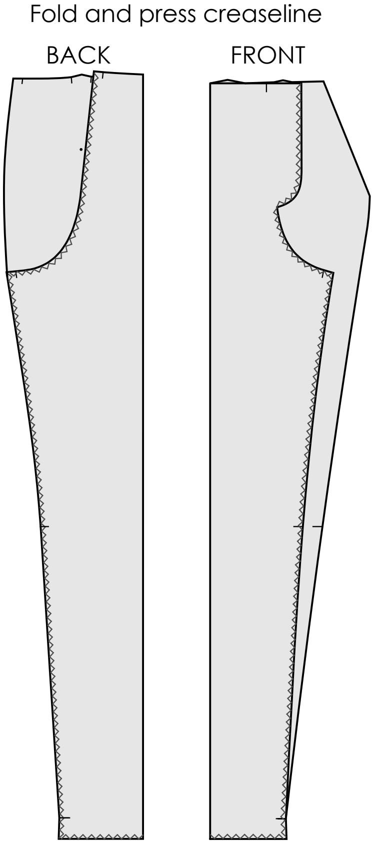
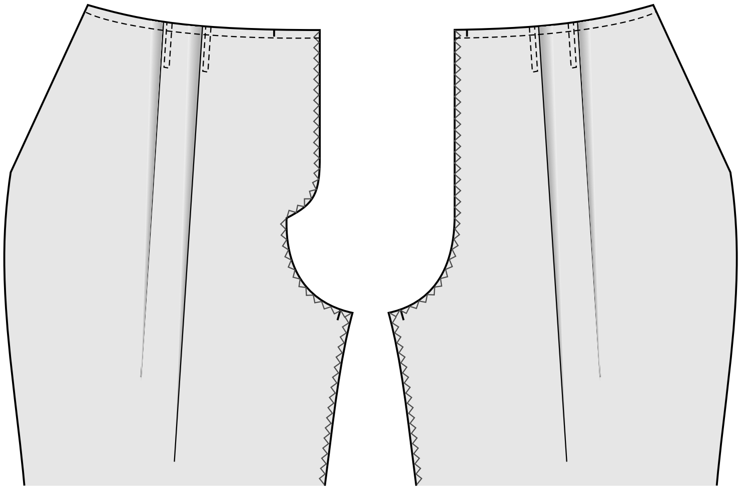


Figure 14



Sewing Instructions for the Pocket

Sewing instructions apply to pockets on the right and left front pant.

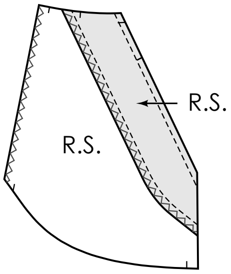
Stitch Facing and Backing to Lining

Figures 15a, b

- With the fabrics right-side-up, stitch the facing on the pouch lining (Figure 15a) and the backing on the full lining (Figure 15b).

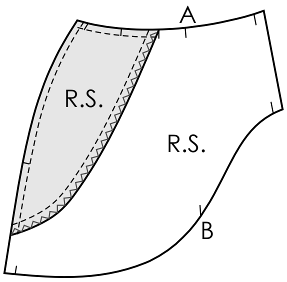
Note: R.S. means right side of fabric.
W.S. means wrong side of fabric.

Figure 15a



Pouch lining

Figure 15b



Full lining support

Stitch Pocket Pouch to the Pant

Figures 16a, b

- Stitch the pocket pouch to the entry of the pant with the right side facing (Figure 16a).
- Fold the pocket pouch over and edge-stitch the facing (Figure 16b).

Figure 16a

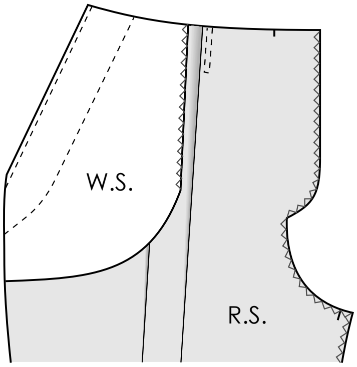
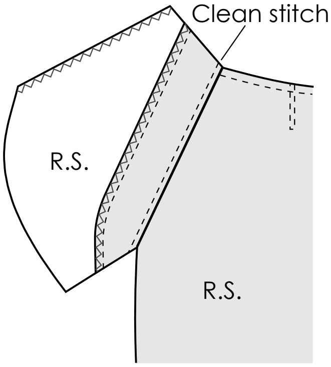


Figure 16b



Stitch Pouch to Full Lining

Figures 17a, b

- With the right side of the pouch and full lining facing each other, pin the pouch to the A and B notches and stitch (Figure 17a).
- Finish the raw seams together along the bottom edge of the pocket (Figure 17b).

Figure 17a

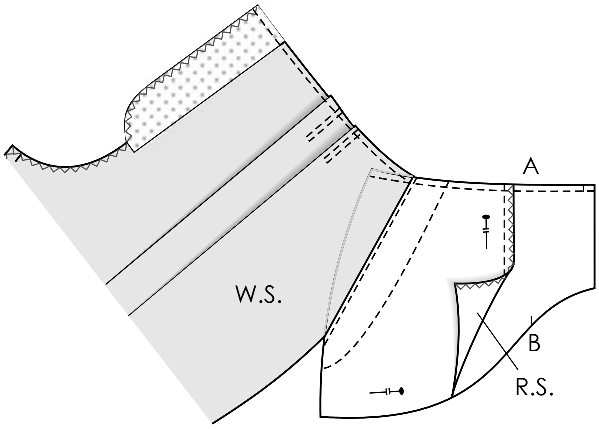
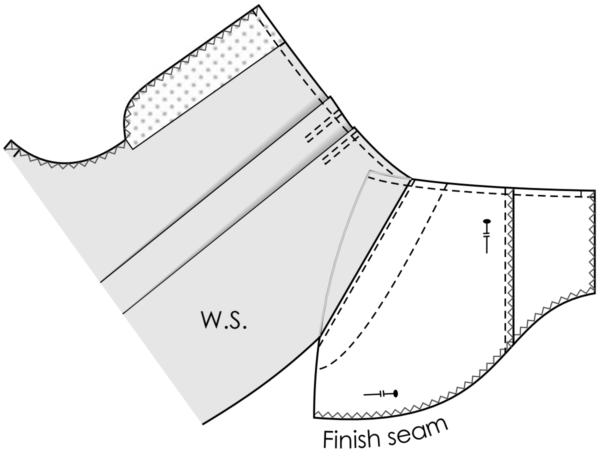


Figure 17b



Completed Pocket

Figures 18a, b

- Pin the pocket to the pant and stitch across the waistline.
- Finish the outseams of the front pant and pocket.
- The lining is caught in the stitch of the zipper.

Figure 18a

Left pant

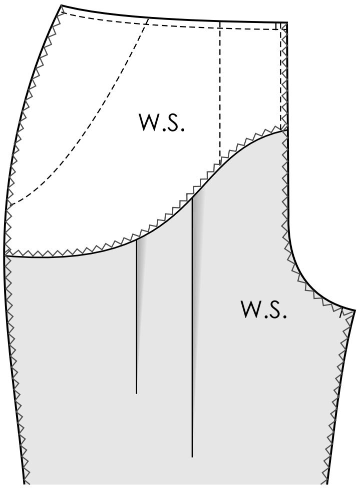
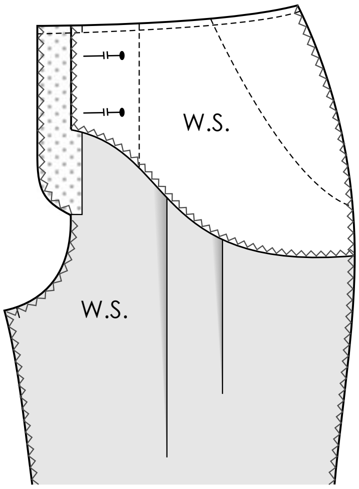


Figure 18b

Right pant



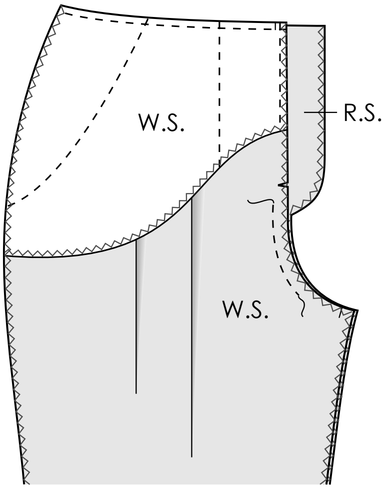
Attaching the Zipper

Joining Front Pants at the Crotch

Figure 19

- Place the right sides of the front pants together and stitch about 2 inches between the notches at the curve of the crotch.
- Fold the right side of the fly at center line and press to the wrong side.

Figure 19



Shield

Figure 20

Fold the wrong sides of the shield together and finish the raw seam.

Stitching Zipper to the Shield

Figure 21

Place the right side of the zipper 1/8 inch above the shield and aligned with the finished edge. Stitch 1/8 inch from the tape edge of the zipper and another 1/16 inch along zipper teeth.

Figure 20

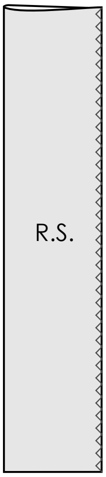
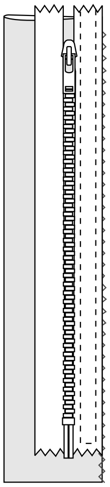


Figure 21



Left Pant Stitched to Zipper

Figure 22

- Place the waist of the left pant at level with the shield and aligned with the zipper.
- Stitch 3/8 inch from the tape edge (waist to the length of the zipper).

Figure 23

Fold the pant to right side and edge-stitch along the zipper length.

Figure 22

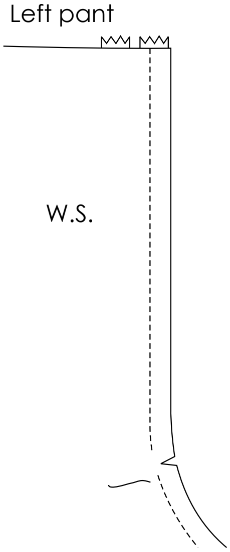
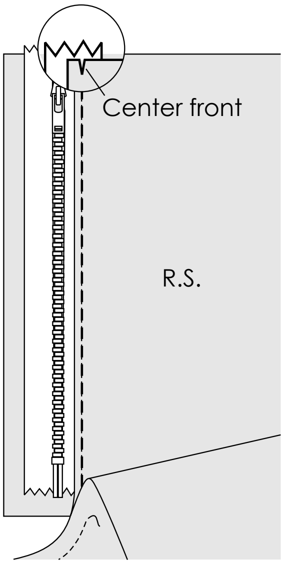


Figure 23



Lap Fly over the Shield

Figure 24

Place the fold of the fly at the center front notch of the left pant. Pin or baste (as shown) and catch only the pant.

Zipper Stitched to the Right Pant Fly

Figure 25

Place the right pant under the left pant except for the fly. Pin shield away and stitch the zipper to the fly.

Figure 24

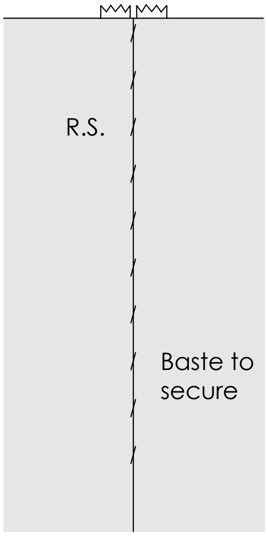
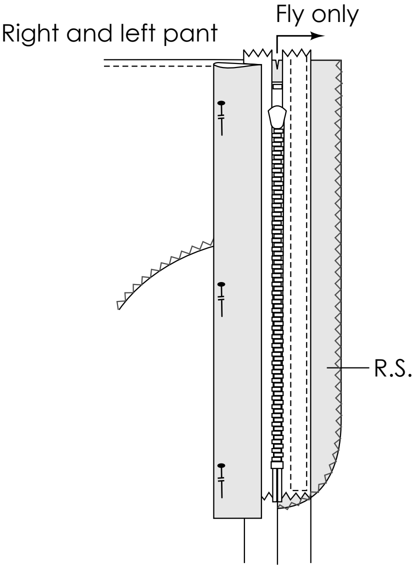

R.S.
Baste to secure

Figure 25

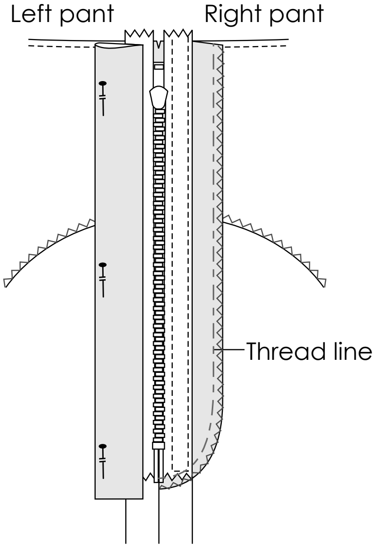

Right and left pant
Fly only
R.S.

Thread-Line Guide

Figure 26

Unfold the right pant. Thread-line the edge of the fly through the right side pant as a sewing guide for top-stitching.

Figure 26

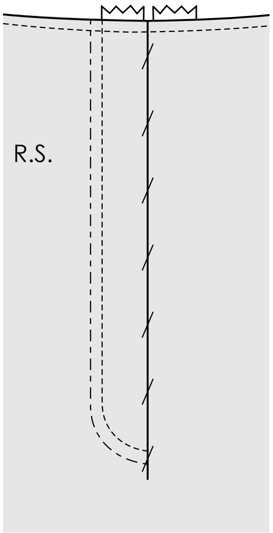

Left pant
Right pant
Thread line

Stitching the Fly

Figure 27

Place the pant right-side-up. Stitch 1/4 inch in from the thread-line guide. If two rows of stitching are desired, stitch 1/4 inch from the first stitch. Back-stitch at the end of the curve to secure.

Figure 27

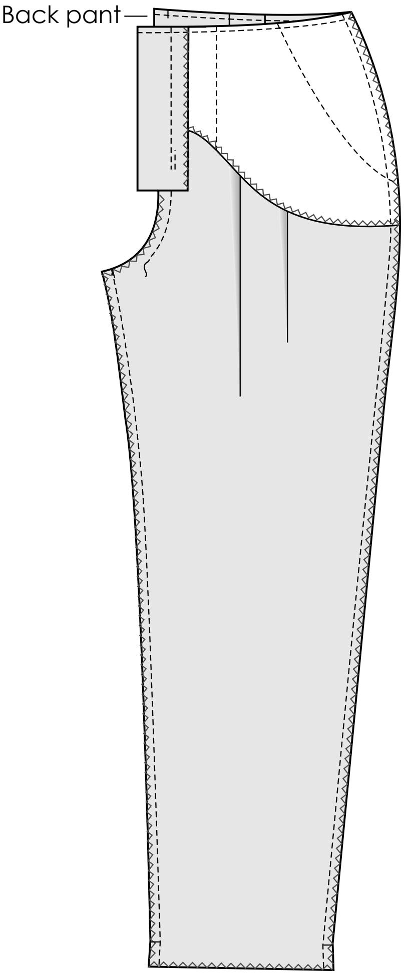


Joining the Front and Back Pant

Figure 28

Stitch the outseams and inseams with the right sides facing. Press seams open. Press the foldline of the hem.

Figure 28

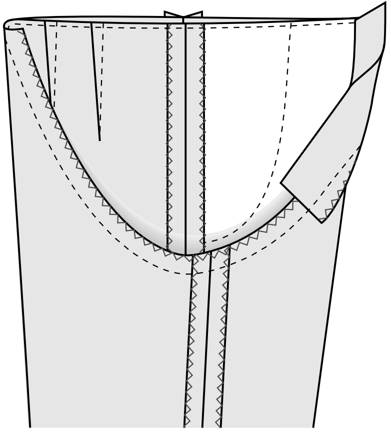


Stitching the Crotch Curve

Figure 29

- Pin and stitch the crotch curve or pull one pant leg through the other and stitch.
- Double-stitch or tape-line the crotch curve for extra security.

Figure 29



Waist Band Loops

Prepare belt loops before stitching the waist band to the pant. Fold the loop with right sides facing. Stitch 1/8-inch seams. Turn the loop to the right side; center the seam and press. Edge-stitch each side of the loop. Cut six loops into 2 1/4-inch lengths. The loop should be placed between the pleats, at the pockets and darts of the back.

Stitching Guide

Figures 30a, b

- Stitch one end of the loop on the right side of the waist of the pant.
- Stitch/back-stitch the loop 1/4 inch below the waist (Figure 30a).
- After the waist band is attached (see next page), the top of the loop is folded 1/4 inch and stitched to the top of the waist band (Figure 30b).

  Continue to next page.

Figure 30a

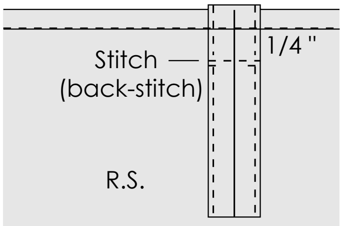
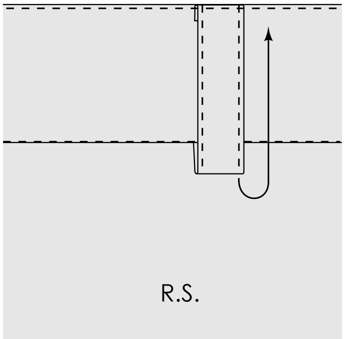


Figure 30b



Waist Band

Choose one of the two methods illustrated.

Method 1:

- Follow illustration shown in Figure 31a.
- Fold and stitch waist band to finish each end and back stitch; see Figure 31b.
- Fold waist band and pant to right side and pin along fold line; "stitch in the ditch" to catch back side of the waist band. Figure 31c.
- Center button and button hole; see Figure 33.

Figure 31a

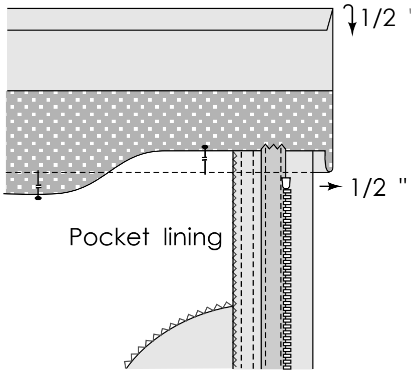

1/2 '
1/2 "
Pocket lining

Figure 31b

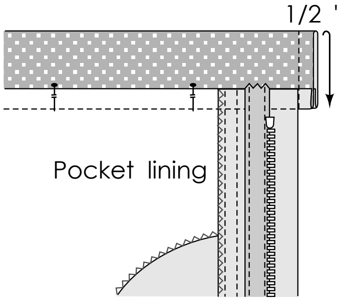
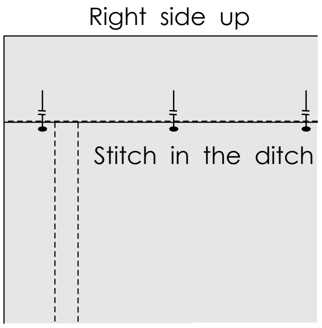

1/2 '
Pocket lining

Figure 31c


Right side up
Stitch in the ditch

Method 2:

- Follow illustration shown in Figure 32a.

  Finish the top edge of the waist band by overlock or serge. Pin and stitch to the waist.
- See Figure 31b to finish the waist band ends.
- Fold finished edge 1/2 inch below the stitch line of the back waist and pin. See Figure 32b.
- Turn over and "stitch in the ditch" to catch back side of the waist band; see Figure 31c.
- Center button and button hole; see Figure 33.

Figure 32a

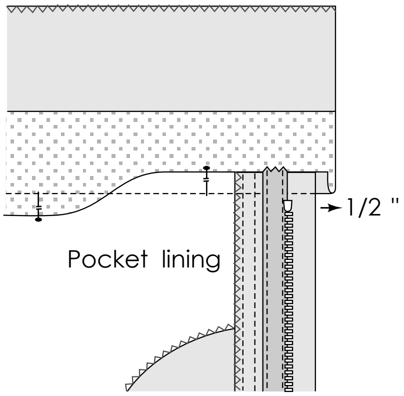

1/2 "
Pocket lining

Figure 32b

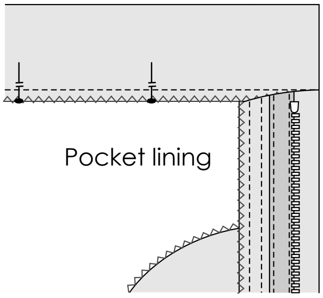
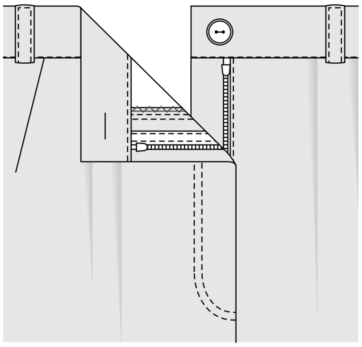

Pocket lining

Figure 33

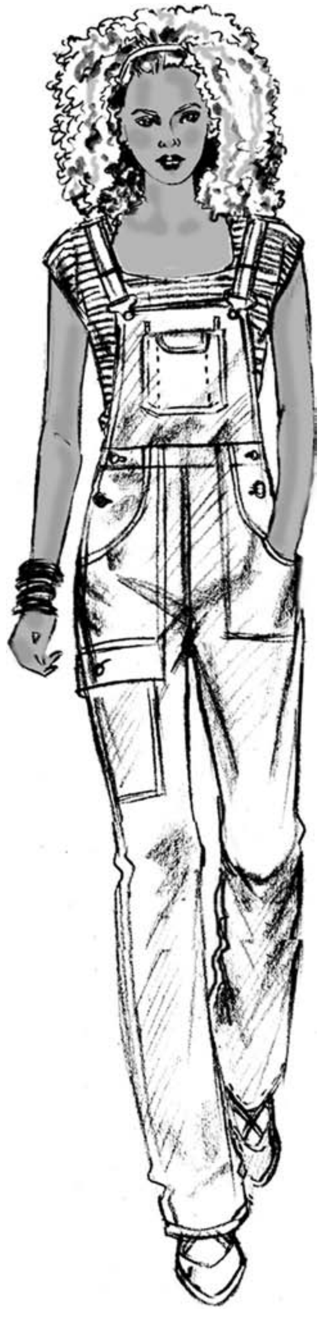


THE DUNGAREES FOUNDATION

The dungaree (bib-top with crossover back suspenders) was a work overall for farmers and other laborers. The original and updated versions of the dungaree were soon accepted as a chic fashion statement.

The Foundation Draft

The trouser jumpsuit is the base for this design. Hardware secures straps to the bib. Figures 1 and 2 are the foundation for design variations. The legline can be of any length or width. Plot the pattern for the fashion sketch (previous page), or create your own design. For men's wear, use the trouser foundation.



Figures 1, 2

- Trace the jumpsuit patterns. Include all markings except the waistline darts.
- Plot the patterns by using measurements, the bust point and the location of the stylelines as drawn on the pattern.
- *Back:* Mark X 1 inch out from the broken line. *For sizes smaller or larger than size 12 (medium), adjust proportions to balance the design.*

Figure 1

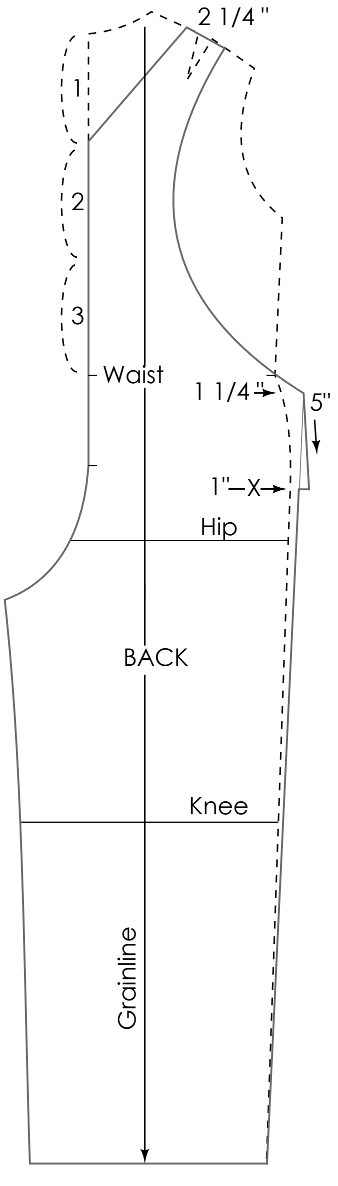
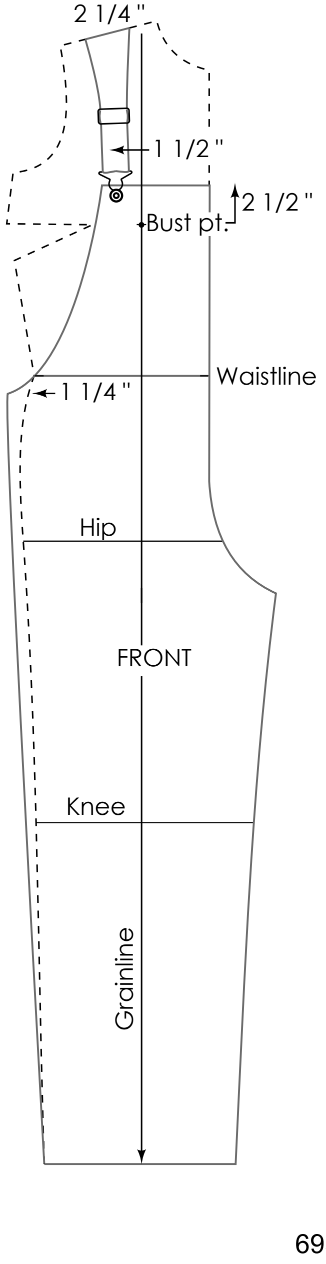

2 1/4"
1
2
3
Waist
1 1/4"
5"
1"–X
Hip
BACK
Knee
Grainline

Figure 2


2 1/4"
1 1/2"
2 1/2"
Bust pt.
Waistline
1 1/4"
Hip
FRONT
Knee
Grainline

Dungarees Chic

Design Analysis

The bib pocket can be divided into utility compartments. The set-in band at the waistline catches the loop of the tunnel-loop pocket. Large pockets are placed on the seat of the back. Plot the design details using measurements and the bust point (chest point) as a reference.

Pattern Plot and Manipulation

Figure 3 Back

- Patch pocket: width—6″ × 7″.
- Draw the pocket on the pattern.

Figure 4 Front

- Bib pocket: 3 1/2″ × 7″ (cut on fold).
- Tunnel-loop pocket: 3 1/2 inches down from side waist to hip level. Pocket width ends at grainline.
- The loop is 1 1/2 inches wide.
- Draw a parallel line 1 1/2 inches below the waist for the underside lining pattern.

Figure 3

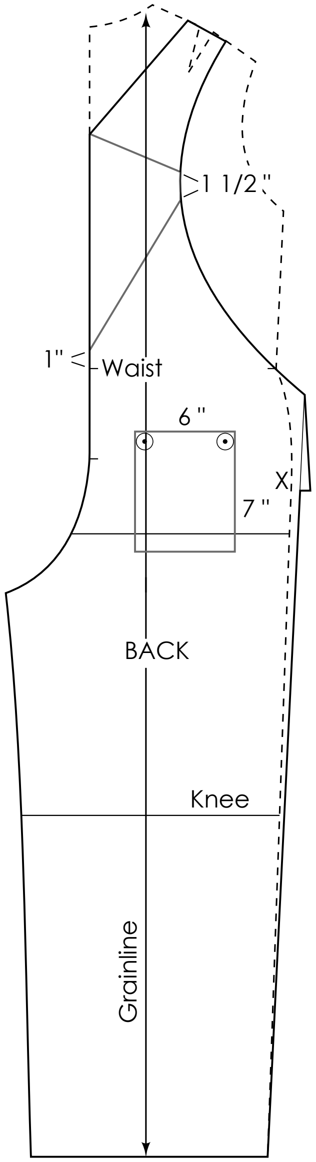

1 1/2"
1"
Waist
6"
X
7"
BACK
Knee
Grainline

Figure 4

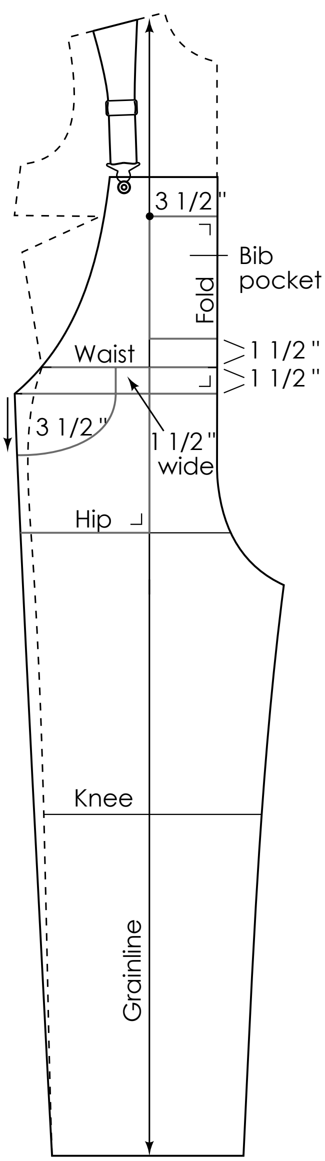
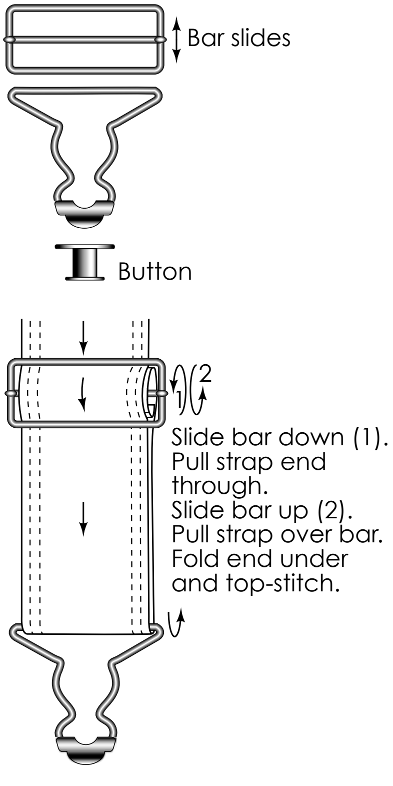

3 1/2"
Bib pocket
Fold
Waist
1 1/2"
1 1/2"
3 1/2"
1 1/2" wide
Hip
Knee
Grainline

Figure 5


Bar slides
Button
2
1

Slide bar down (1).
Pull strap end through.
Slide bar up (2).
Pull strap over bar.
Fold end under and top-stitch.

Findings

Figure 5

The hardware closure and buttons can be purchased at fashion industry supply and fabric stores. A button attachment tool is needed. *Note:* Dritz has the Snap & Rivets hand tool for purchase, or the snap and rivet tool may be purchased through Dritz.

Separating the Patterns

Figure 6

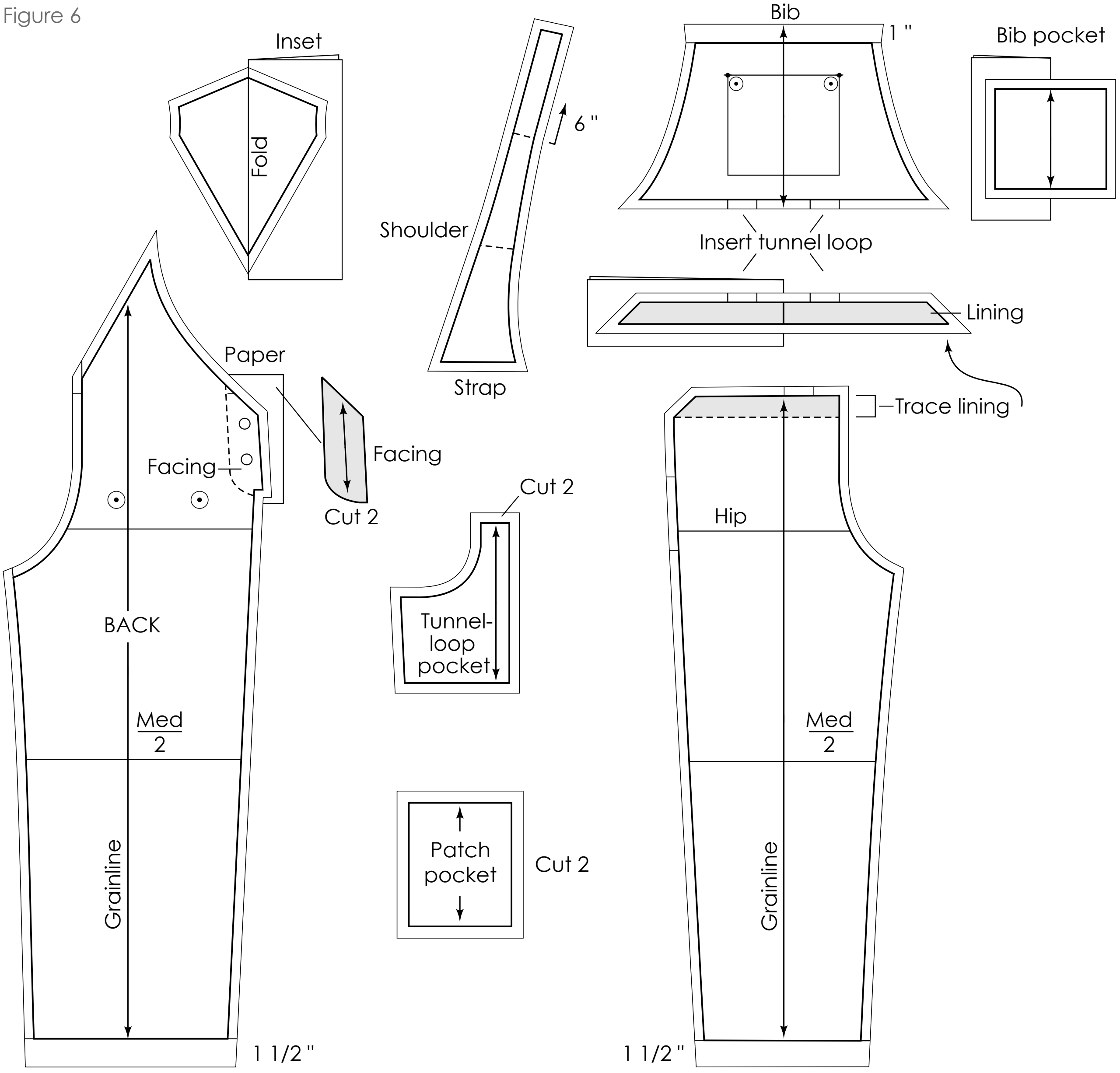
Separate each pattern part and discard the broken-line areas of the draft.

- Join the front and back strap and add 6 inches to the strap length.
- Draw a facing pattern at the side entry 1 1/2 inches wide and 5 inches long. Mark two button/buttonholes. With paper underneath, trace the facing pattern. Remove and cut from paper (shaded pattern).
- Trace a lining pattern from the simulated waist band (shaded area).
- *Seam allowances:* All seams are 1/2 inch, except where otherwise noted.
- Cut patterns from the paper. Cut back inset, top bib, and bib pocket on fold.

Sewing Guide

Fold 1/2-inch seams around pockets and bib. Place on garment and double-stitch. Stitch the bib vertically to divide into compartments. The loop of the pocket is sandwiched between the garment and the lining. Fold the lining downward and run a parallel stitch across the garment (creates a simulated waist band). Outer seams are double-folded and double-stitched.

Figure 6


Inset
Fold
Shoulder
6 "
Strap
Bib
1 "
Bib pocket
Insert tunnel loop
Lining
Trace lining
Paper
Facing
Facing
Cut 2
BACK
Med
2
Grainline
1 1/2 "
Cut 2
Tunnel-loop pocket
Patch pocket
Cut 2
Hip
Med
2
Grainline
1 1/2 "

Baggy Pant

The baggy pant is based on the trouser foundation. To develop companion pants use the male trouser foundation and follow instructions.

Pattern Plot and Manipulation

Figures 1a, b

- Draw a horizontal guideline across the paper.
- Place the front and back patterns on the paper, matching crotch levels with the guideline. Space patterns at crotch 1 to 3 inches (or more) for added fullness. Trace.

Modify as follows:

- Add 1 1/2 inches to length of the pant for overhang.
- Extend center front up 2 1/2 inches and square across the pattern to the center back. (When folded, it becomes a casing for a cord to pull through Figure 1b).
- Mark the notch for fold-over 1 1/4 inches down from top.
- Mark buttonhole 3/4 inch in from center front.
- Draw the pocket, as shown, or create your own.
- Mark punch and circles 1/4 inch down and in 1/8 inch from corners for placement of pocket.

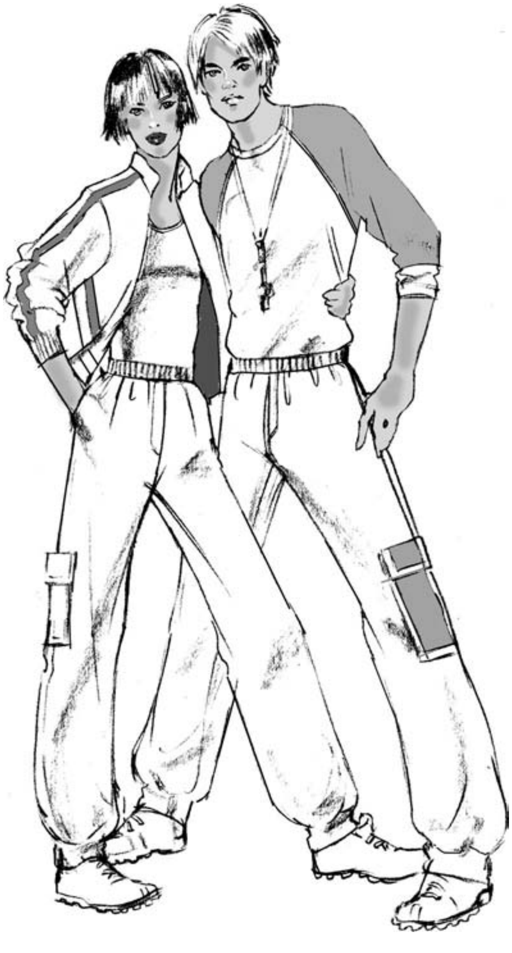


Figure 1a

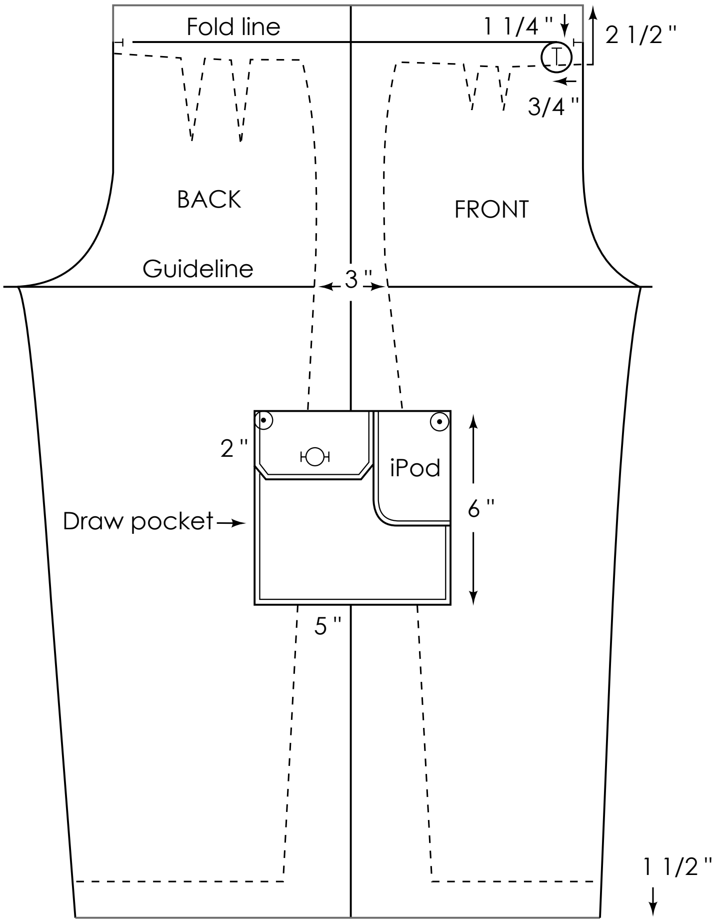


Figure 1b

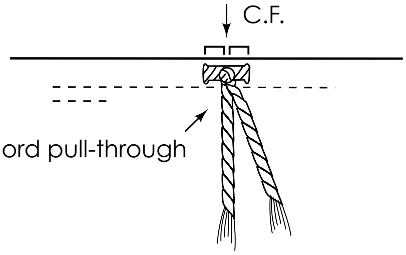
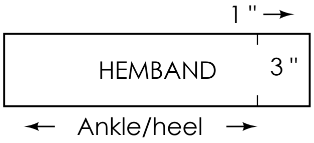


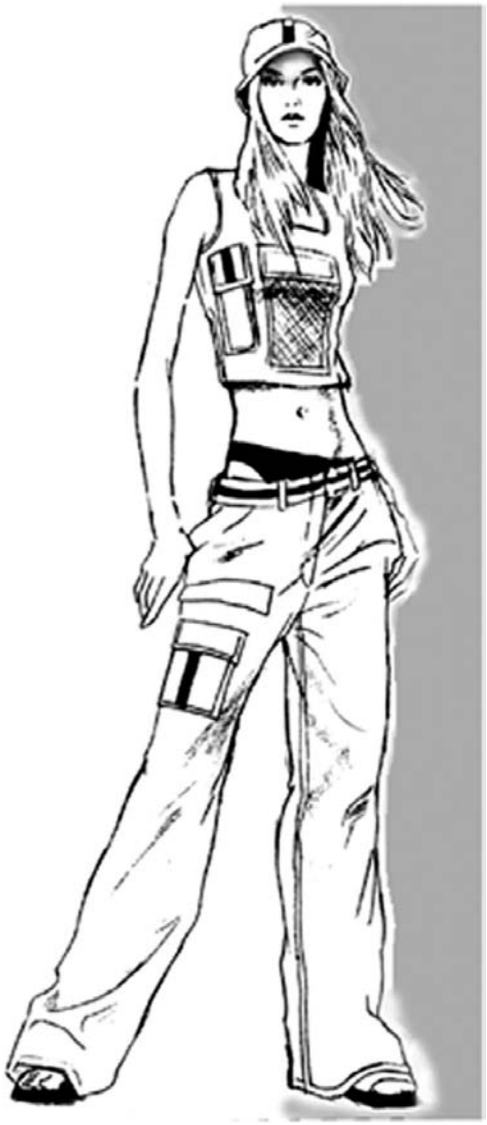
Figure 2 Hemband: Self or Ribbing

- Length = at least ankle and heel measurement. Width = 3 inches (finished width = 1 1/2 inches). If button and buttonhole are desired, add a 1-inch extension; otherwise, the band is seamed together. Ribbing will also be an option.

Figure 2



Hip Hop Pant



Design Analysis

The trouser foundation or the pleated trouser can be the base for the hip hop pant. The waistline will be increased by not stitching the waist darts and by straightening the hip curves and center lines. The increased waist measurement causes the pant to drop to hip level. The length and width of the pant legs are shaped by design preference. Use this foundation to create your own design.

Hip Hop Draft

Figures 1, 2

- Trace the trouser foundation (Figures 1 and 2)
- Square up from the side hips and center lines to the waist level and square down to the hemlines. (Broken lines are the original pant.)
- Blend the waistline and hemline.
- Draw the fly (seam included).
- Draw shield (Figure 2a).
- Add 1/2-inch seams and pattern information.
- Cut and stitch the pant. Pin legline to the preferred shape.

Figure 2a

Shield

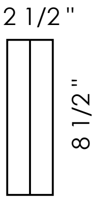


Figure 1

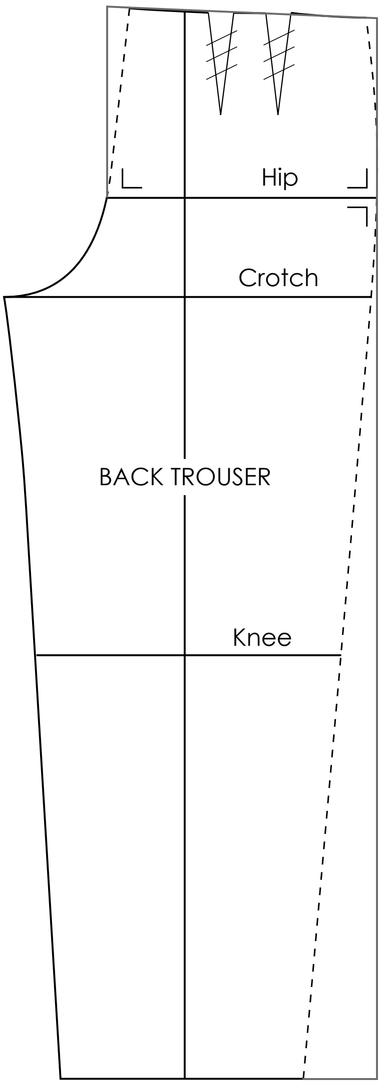
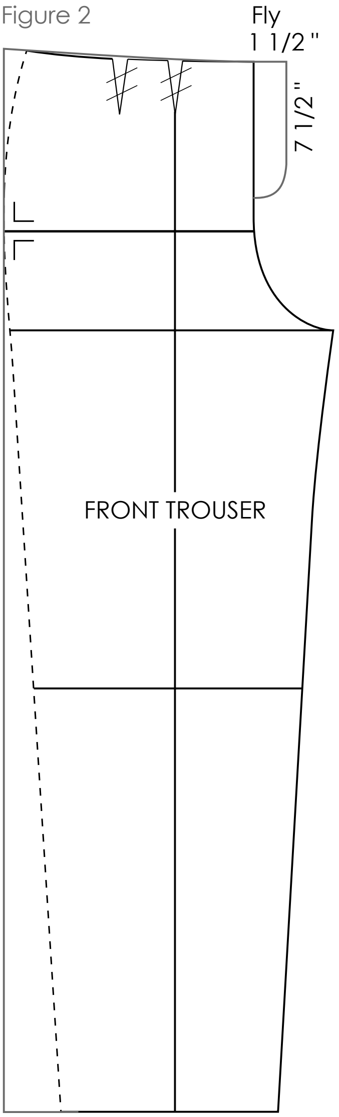


Figure 2



Pull-On Pant with Self-Casing

Design Analysis

A pull-on pant has elastic inserted in a self-casing, causing a slight gathering at the waistline that replaces darts. Pant should be cut in a firm knit and modified to offset stretch. The pull-on pant can be developed using any pant foundation. The slack pant is illustrated.

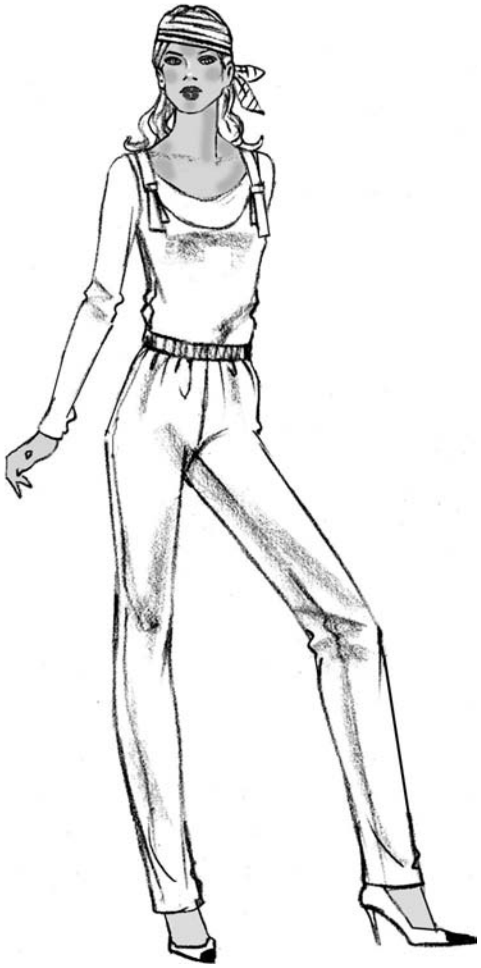
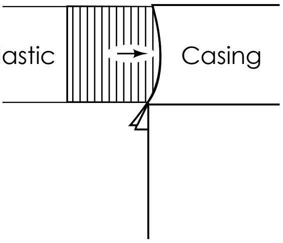


Figure 5 Casing

- Casing should be 1/4 inch wider than elastic to facilitate insertion. Use a safety pin or bodkin to insert elastic.

Figure 5



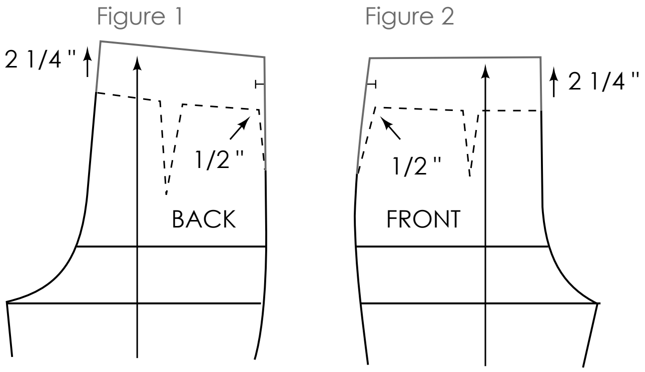
Pattern Plot and Manipulation

Measurement Needed

- (2) Waistline circumference ________________.

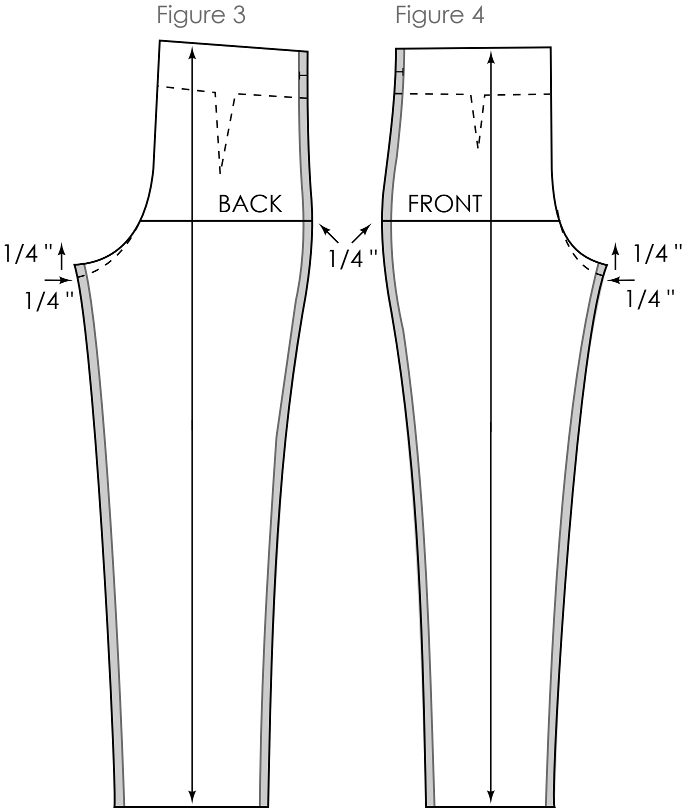
Figures 1, 2

- Trace front and back slack foundation.
- Extend the waist up 2 1/4 inches (for 1-inch-wide elastic).
- *Elastic:* Width = 1 inch. Length = waist measurement less 1 1/2 inches. Use 1/2 inch for overlap.



Figures 3, 4

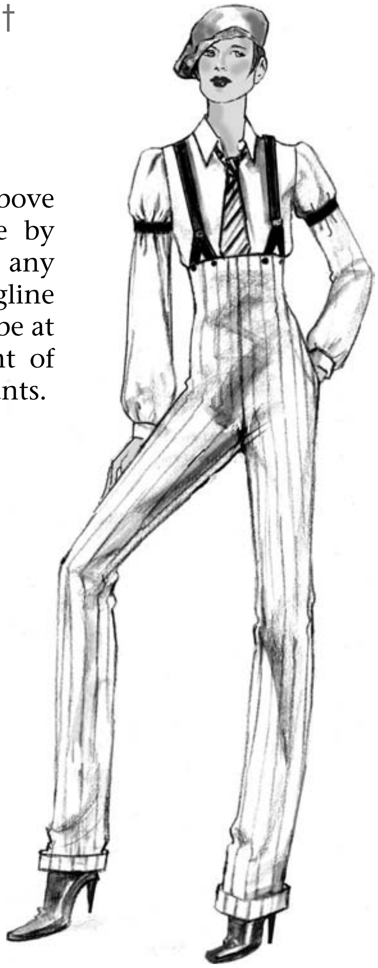
- When cut in a firm knit, trim the pattern (shaded areas) by following the illustrations.
- Draw grainline and complete the pattern for a test fit.



High-Waist Pant

Design Analysis

Waistline extends above the natural waistline by any amount and on any pant foundation or legline style. The zipper can be at the back or the front of the female or male pants.



Pattern Plot and Manipulation

Figures 1a, b

- Trace front and back pant.
- Flip the patterns upward, touching center front, back, and side seams.
- Trace 2 1/2 inches of each pant.
- Draw a line parallel to the waistline.

Figure 1a

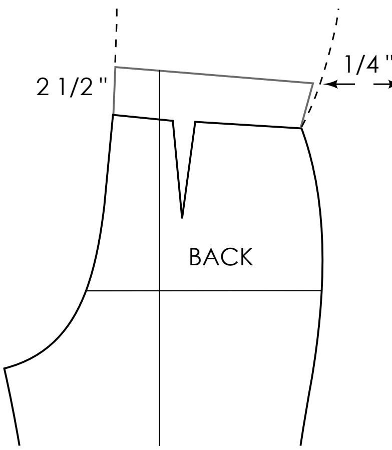
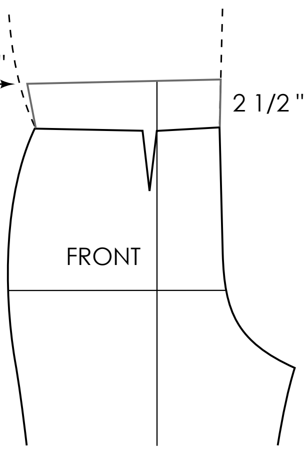


Figure 1b



Figures 2a, b

- Draw lines through the centers of each dart to the high waist.
- Mark 1/4 inch and 1/8 inch out from each side and draw lines to the darts at waist level.

Figure 2a

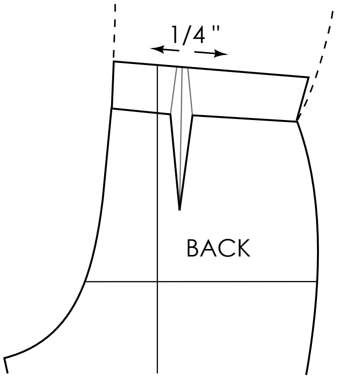
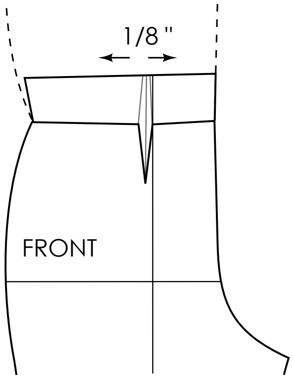


Figure 2b



Figures 3a, b

- Trace the facing, ending 1/2 inch below the waist (shaded area).

Figure 3a

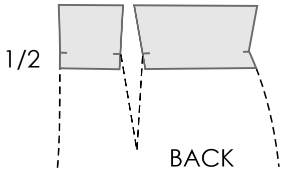
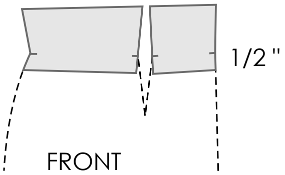


Figure 3b



Figures 4a, b

Cut the facing sections. Tape darts together. Trace with the front on the fold and blend.

Figure 4a

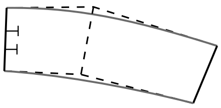


Figure 4b

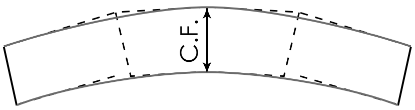
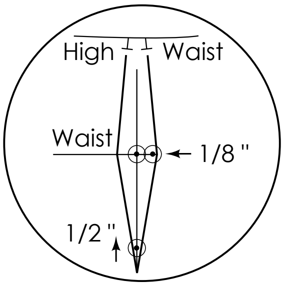


Figure 5

- Mark punch/circles and notch darts at high waist.
- Add the seam allowance.

Figure 5



Jean with V-Yoke

Design Analysis

The V-yoke is based on the jean foundation. It has traditional design elements, with waist bands placed at varying depths below the waist. Legline shapes (basic, tapered, and flared) are dictated by the whims of fashion.

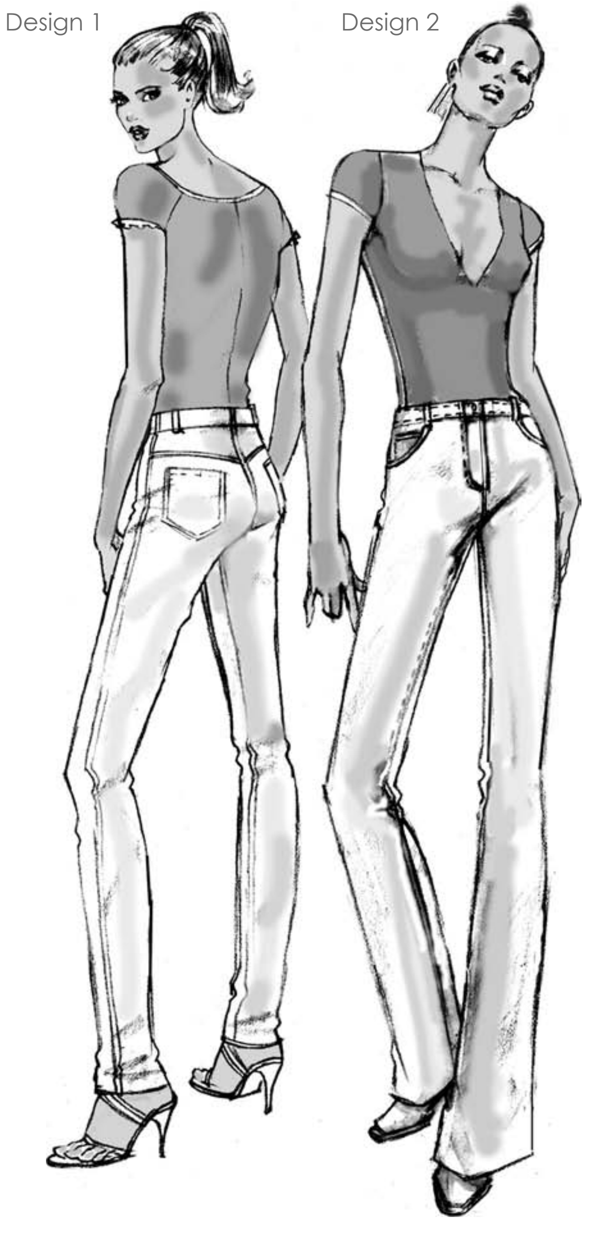
Three Variations of Waist Band Placement

Variations 1, 2, and 3 are examples of waist bands from which to choose. Variation 1 is illustrated on next page.

Measurement Needed

(32) Ankle, plus 3 inches _______.

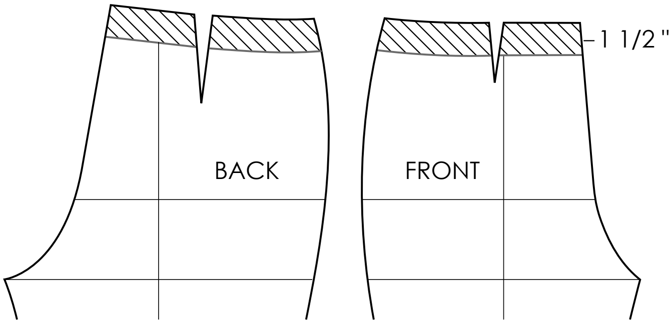
(30) Knee measurement, plus 2 inches _______.


Design 1 Design 2

Variation 1

Waist band pattern (lined area) starts at waist level and 1 1/2 inches down.

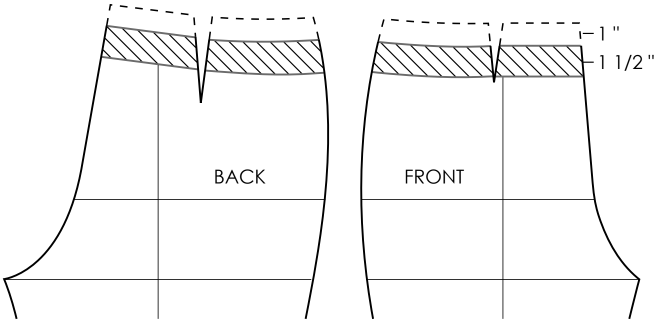
Figure 1



Variation 2

Waist band pattern (lined area) begins 1 inch below waist level. The width of the waist band is 1 1/2 inches. Shaded area is trimmed.

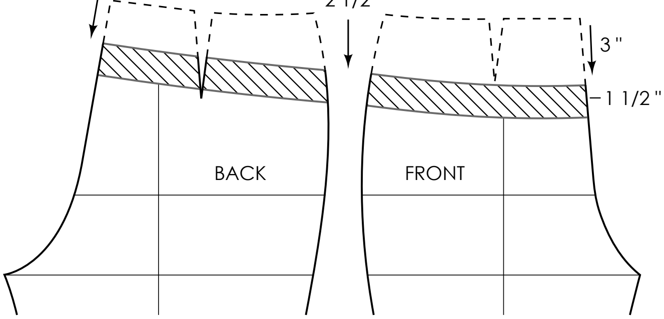
Figure 2



Variation 3

Waist band pattern (lined area) begins 3 inches down from the center front, 2 1/2 inches down from side seam, and gradually ends 2 inches down the center back. Shaded area is trimmed.

Figure 3



Pattern Plot and Manipulation

The waist band measurements are for Variation 1. If Variation 2 or 3 is chosen, use measurements on previous page and follow yoke instruction.

Figures 1, 2

- Trace the front and back jean pant.
- Draft the preferred style given in Variations 1, 2, and 3.
- Draw the back yoke, as shown.

Draw the Legline Style of Choice

- Basic legline of the pant (blue lined)
- Tapered legline as desired (solid lines)
- Flared leg as desired (unequal broken lines)

  Suggestion: Allow additional width for possible legline adjustment.

  Make changes to the pattern.

  As a guide, use your shoe length for adding flare.

Fly and Shield

- Draw the front fly 1 1/2 inches wide. Draw shield 2 1/2 inches wide and 1 inch longer than the zipper. To sew the zipper, refer to Attaching the Zipper section earlier in this chapter.

Separate the Patterns

Figures 3a, b, c

Waist Band Is to Be Interfaced

- Cut the waist band (lined area) from the patterns (Figure 3a).
- Close the dart legs and side seam (Figure 3b).
- Trace two copies of the waist band. One copy ends at center front on the right front pant. The second copy extends 1 1/4 inches on the left side of the pant.

Figure 1

Figure 2

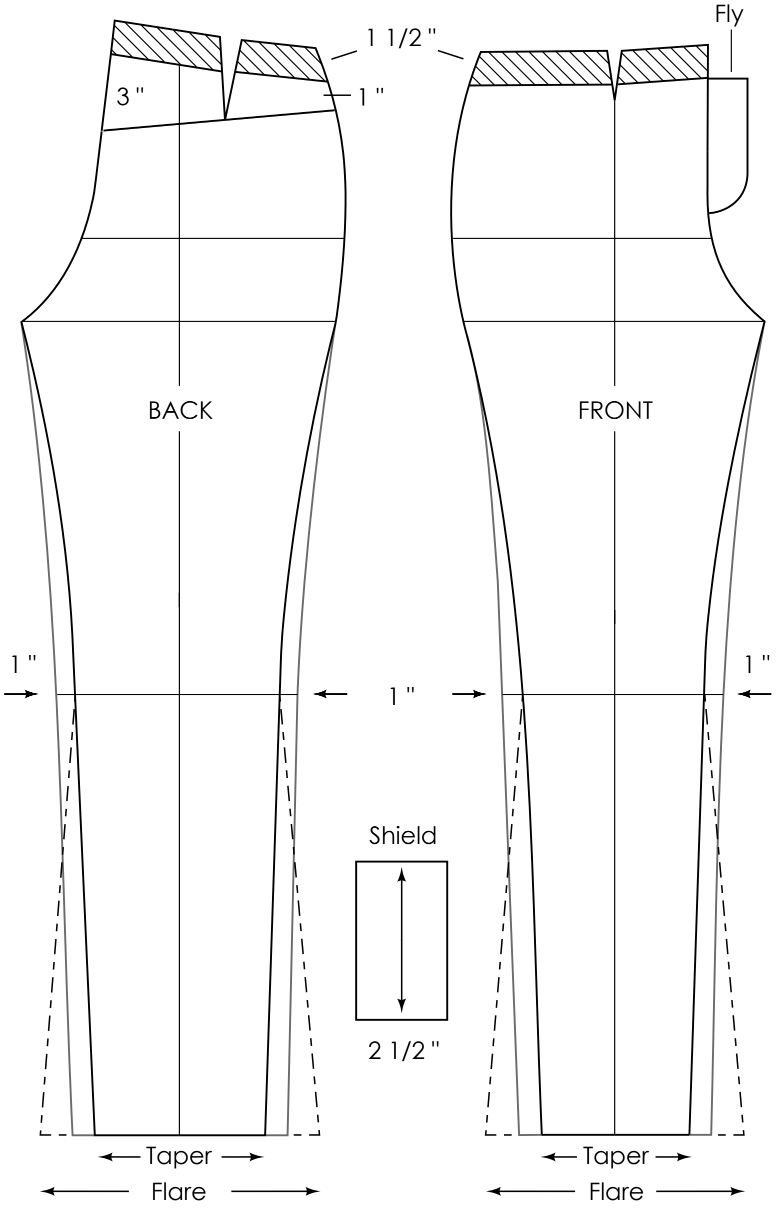

3 "
1 1/2 "
1 "
1 1/2 "
Fly
BACK
FRONT
1 "
1 "
1 "
Shield
2 1/2 "
Taper
Flare
Taper
Flare

Figure 3a

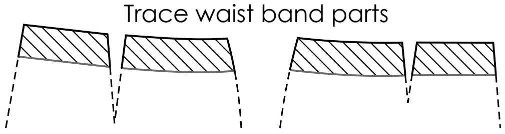
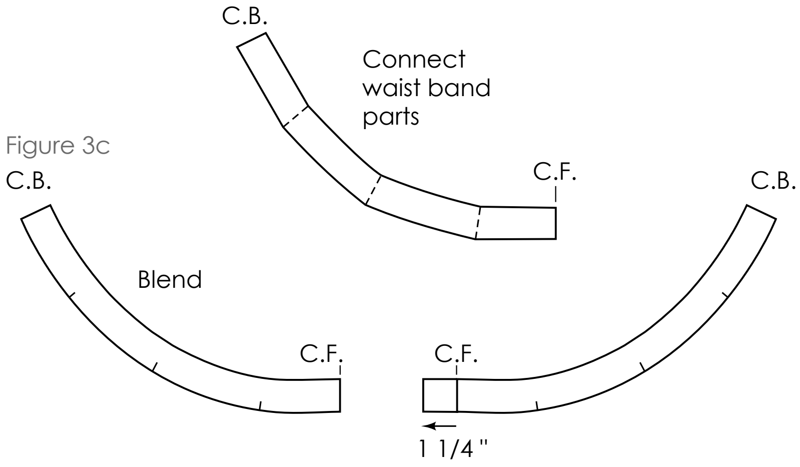

Trace waist band parts

Figure 3b

Figure 3c


C.B.
Connect waist band parts
C.F.
C.B.
Blend
C.F.
C.B.
C.F.
1 1/4 "

Yoke

Figures 4a, b

Cut the yoke from the back pattern (Figure 4a). Close the dart legs and blend (Figure 4b).

Figure 4a

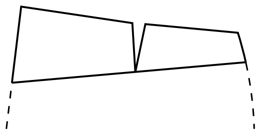
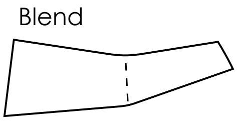


Figure 4b



Back Pant

Figure 5

Trim remaining dart excess at center back.

Western Pocket

Figure 6

Draw the pocket. Cut it out; position it on the pant. Adjust width/length. Trace the pocket on the pant and mark 1/8 inch in from the pocket corners.

Figure 6

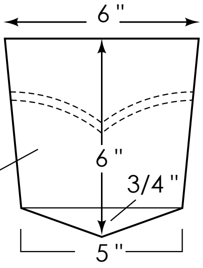
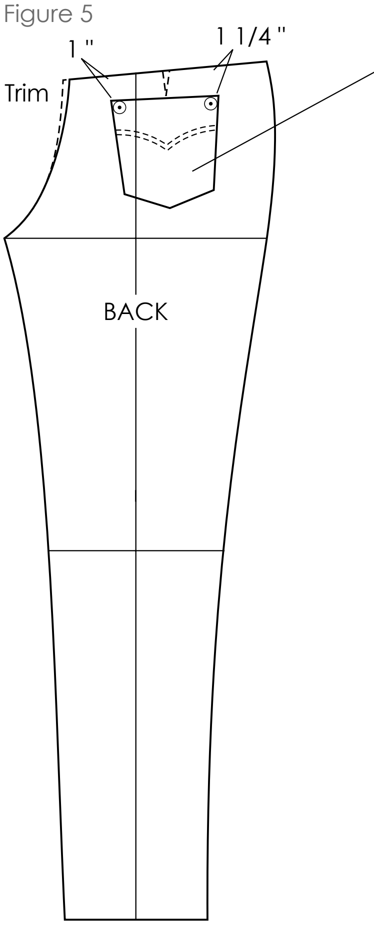


Figure 5

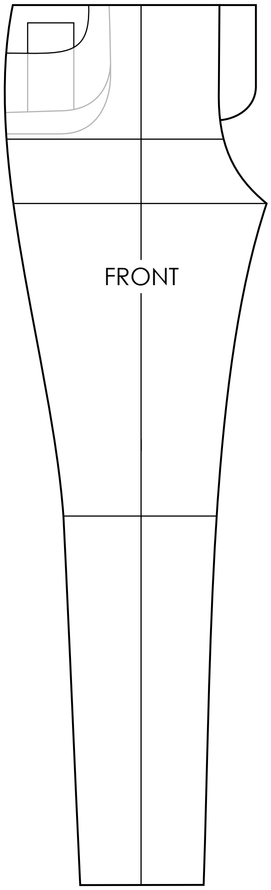


Front Jean Pocket

Figure 7

Draw the jean pocket as illustrated in Figures 7, 8, and 9.

Figure 7



Figures 8a, b Pocket Backing (Lining)

- Mark the side waist X.
- Draw the pocket backing (lining) using the measurements given (Figure 8a).
- Trace the pocket backing.
- Label and add a 1/2-inch seam (Figure 8b).

Figure 8a

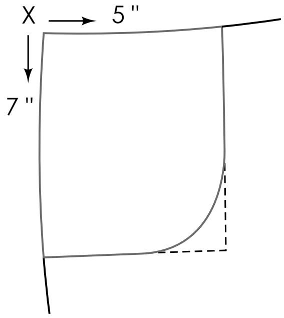
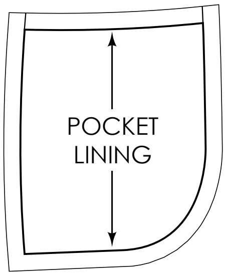


Figure 8b



Self-Facing and Item Pocket

Figures 9a, b, c

- Draw the facing 2 inches shorter than the lining (Figure 9a).
- Draw the item pocket, as shown.
- Trace the facing and item pocket. Label and add 1/2-inch seams (Figures 9b and 9c).

Figure 9a

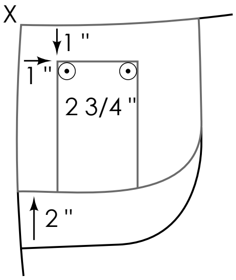


Figure 9b

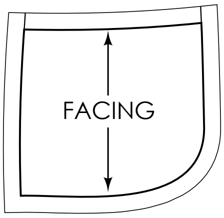
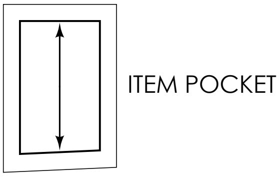


Figure 9c


ITEM POCKET

Pocket Entry

Figures 10a, b

- Draw the pocket entry using the measurements and illustration as a guide. Trim the unneeded section (Figure 10a).
- Trace, label, and add 1/2-inch seams 1/4 inch at the entry (Figure 10b).

Figure 10a

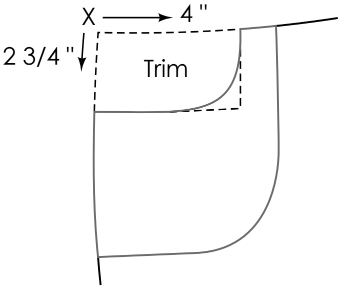
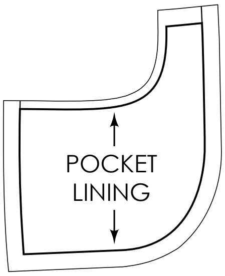


Figure 10b


POCKET
LINING

Completing the Jean Patterns

Figures 11a, b

- The left and right contour waist band is cut twice, and each side is interfaced (Figure 11a).
- Add 1/2-inch seams except where 1/4 inch is noted. Draw the grainlines, pattern information, notches, and pocket marks. Sewing instruction follows (Figures 11a and 11b).

Figure 11a

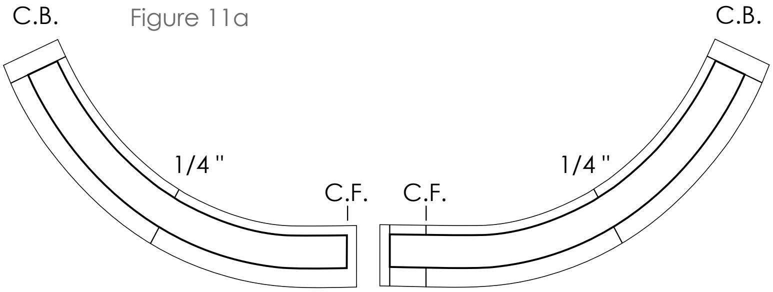
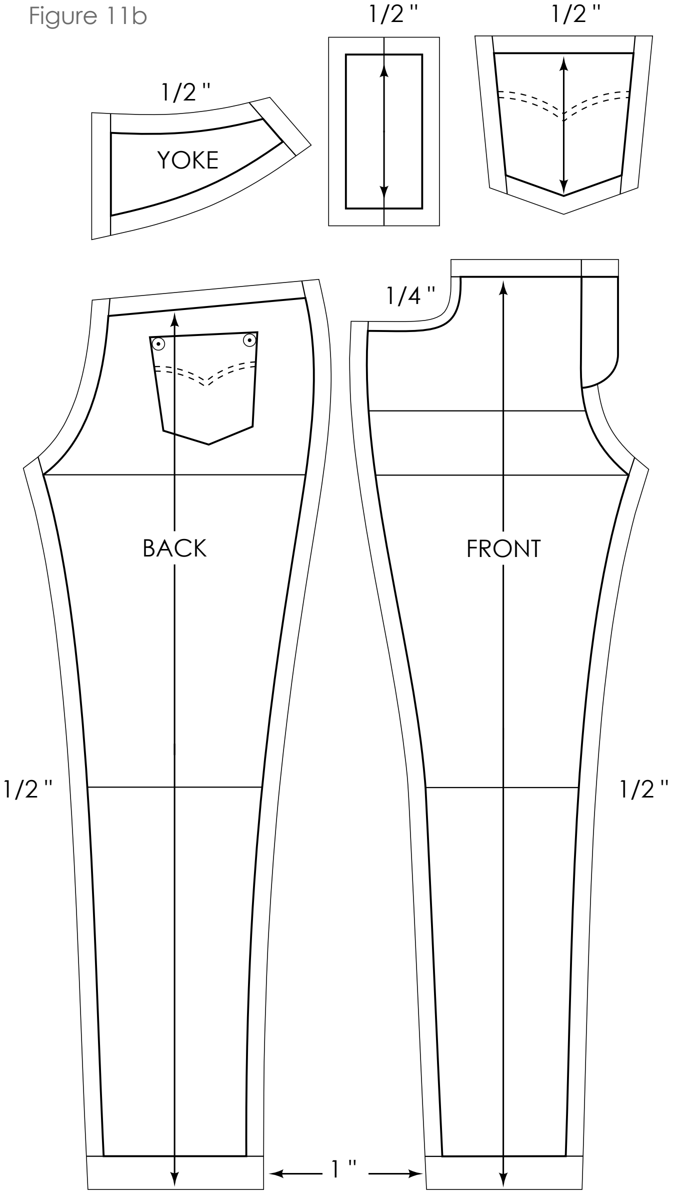

C.B.
C.B.
1/4 "
C.F.
C.F.
1/4 "

Figure 11b


1/2 "
1/2 "
1/2 "
YOKE
1/4 "
BACK
FRONT
1/2 "
1/2 "
1 "

Sewing the Jean Pockets

Reread Cutting the Trouser Pattern section all the way through the Waist Band section for guidance in preparing the pant for cutting and stitching.

Western Pocket

Figures 1a, b

- Fold entry seam 1/4 inch and fold again. Press and double-stitch. Fold the remaining sides 1/2 inch (Figure 1a).
- Pin the pocket to the pant, covering marks, and double-stitch to pant (Figure 1b).

Figure 1a

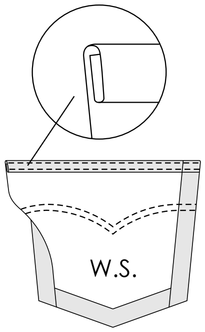
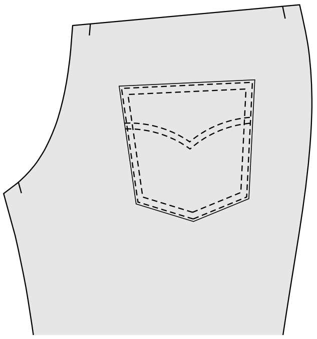


Figure 1b



Item Pocket

Figures 2a, b

- Fold the entry seam 1/4 inch and fold again. Press and double-stitch (Figure 2a).
- Fold the remaining seams 1/2 inch and press (Figure 2b).

Figure 2a

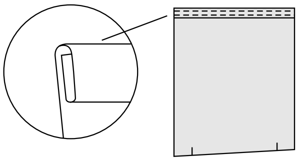
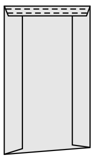


Figure 2b



Facing and Item Pocket

Figures 3a, b

- Pin the item pocket to the right side of the facing, covering the pocket marks, and double-stitch (Figure 3a).
- Sew self-facing to the pocket lining, with right sides facing (Figure 3b).

Figure 3a

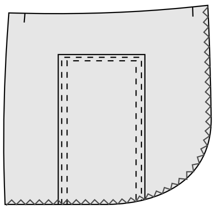
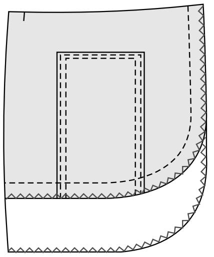


Figure 3b



Facing to the Pant Pocket

Figures 4a, b

- Sew the lining to the pant pocket with right sides facing (Figure 4a).
- Turn the pocket facing and stay-stitch (Figure 4b).

Figure 4a

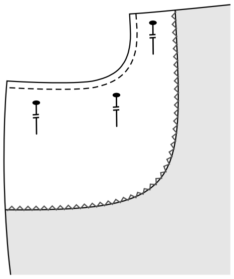
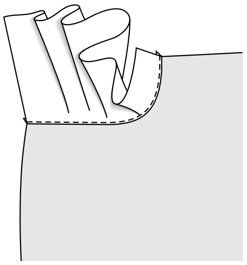


Figure 4b

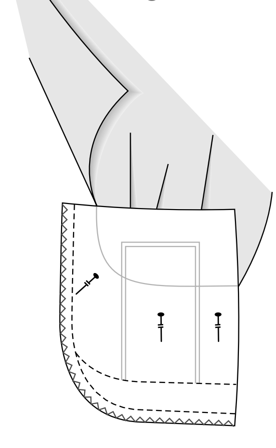


Completing the Pocket

Figure 5

- Turn the pant away from pocket entry.
- Pin the pocket backing to the entry lining and stitch. Finish the raw edges.

Figure 5



Contour Pant with Creaseline Flare

Design Analysis

The contour pant design is achieved by removing excess from under the buttocks via a seam replacing the back creaseline. The pant hemline flares out at the side and back seamlines, dropping low at the center back and rising at center front. The design is based on the slack foundation.

Pattern Plot and Manipulation

Figure 1

- Trace the pant back from side seam to creaseline (broken line indicates the untraced section). Shift dart to the creaseline to remove through the styleline.
- Measure in 1/2 inch from the creaseline at crotch level. Label A.
- *Buttocks contour:* From point A, draw an inward curve blending with an outward curve to the dart point. Continue the curve from A to knee level.
- *Hemline flare:* Extend hemline 1 1/2 inches (more or less). Measure down 1 1/2 inches from the creaseline. Mark. Measure down 1/2 inch at the side seam. Mark. Draw straight lines from marks to knee levels. Draw a curved hemline.

Figure 2

- Trace the pant back from inseam to grainline (broken line indicates untraced section). Repeat the process for shaping the pant.

Figure 3

- Trace the pant front. Extend hemline 1 1/2 inches at side and inseam. Measure down 1/2 inch at each end. Draw straight lines from each mark to knee level. Blend an inward curve at the hemline, as shown.
- Cut the pant patterns from paper, discarding unneeded sections. Draw grainlines and complete the pattern for a test fit.

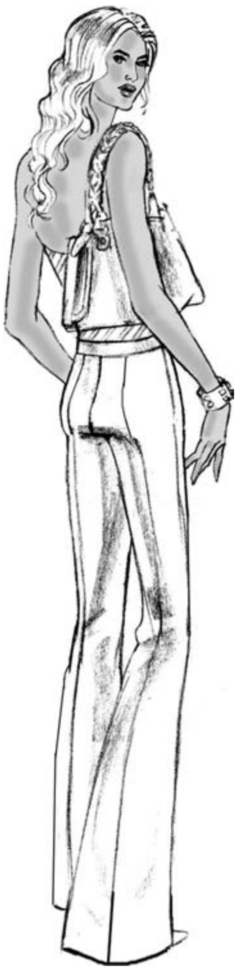


Figure 1

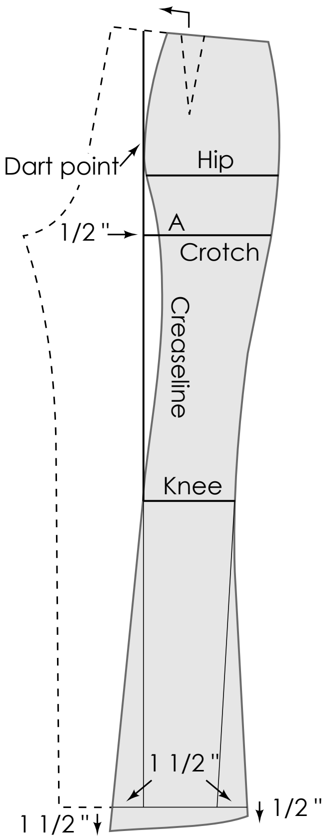


Figure 2

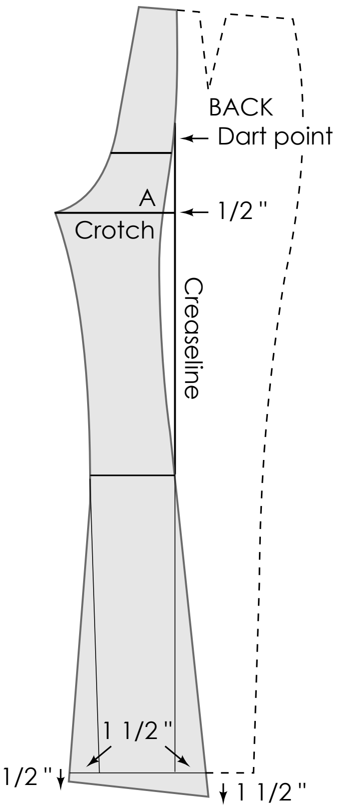
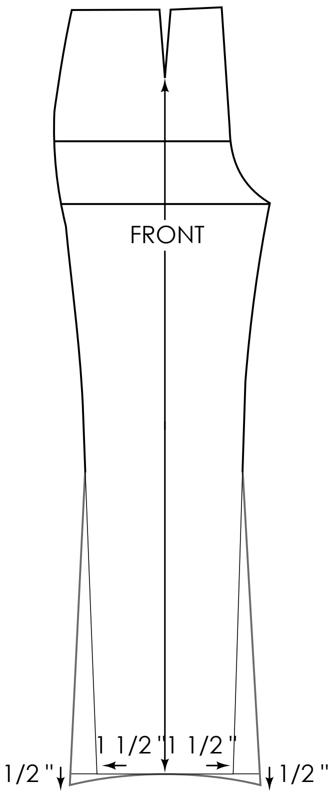


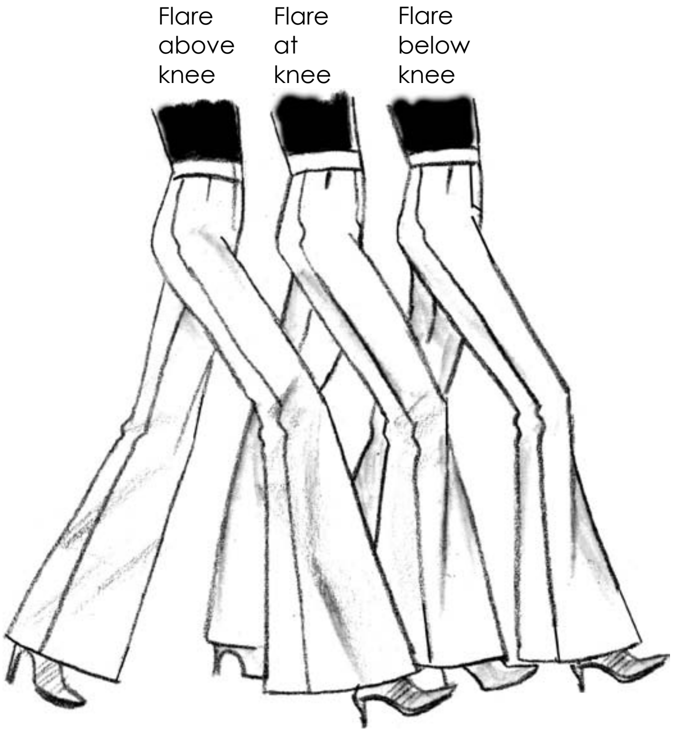
Figure 3



Pant with Flared Leg

Design Analysis

The hemlines of pants can be flared or bell-shaped, starting at varying locations along the legline. Flared leglines can be developed on trouser, slack, or jean foundations.


Flare above knee
Flare at knee
Flare below knee

Pattern Plot and Manipulation

The width or flare of a pant is usually determined by fashion or personal preference. A method for adding width to the hemline is illustrated.

Figures 1, 2

- Add approximately 1-inch length to the pant.
- Measure the *back* crotch level and divide in half. Measure out equally from each side of the creaseline at hem using this measurement. Mark.
- Draw a line from marks at the hem to a location below, at, or above knee level.
- Square in from the flared legline, blending to the grainline at hem of the pant.
- Repeat instructions for the front, subtracting 1/2 inch from the measurement.
- Draw grainline and complete the pattern for a test fit.

Figure 1

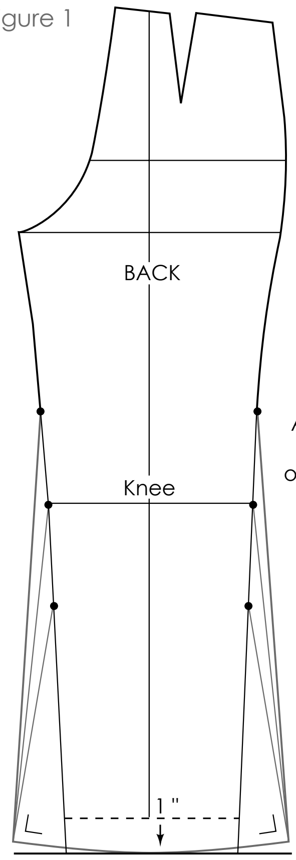
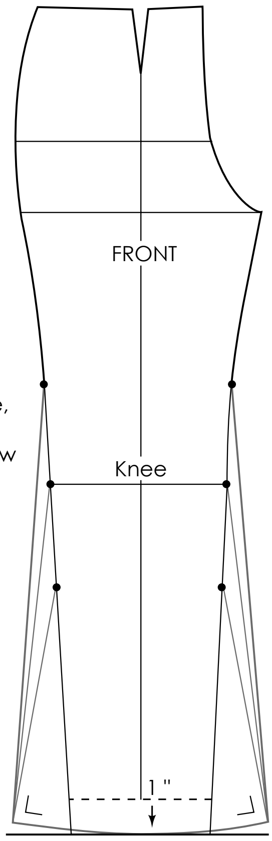
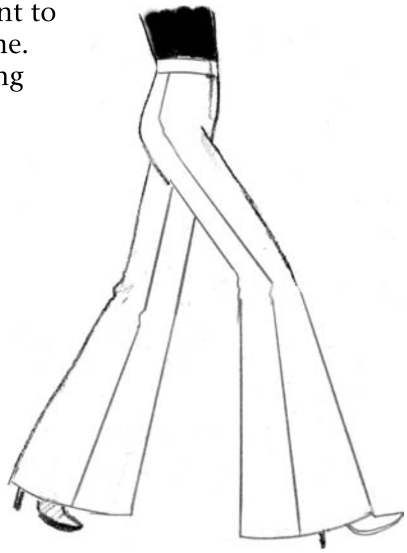

BACK
Knee
1"
Above, at, or below knee

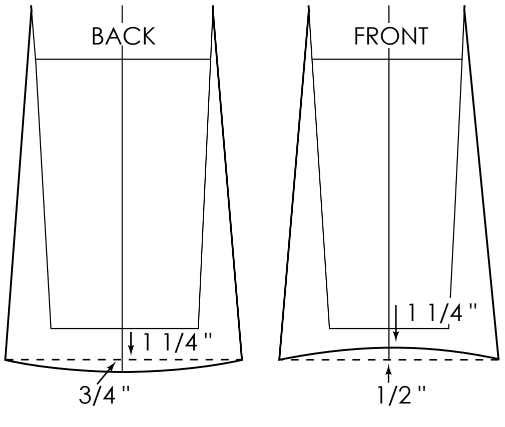
Figure 2


FRONT
Knee
1"

Pant with Curved Hemline

Follow measurement to contour the hemline. Make a 2-inch facing for the hemline.




BACK
1 1/4"
3/4"
FRONT
1 1/4"
1/2"

PANT DERIVATIVES

The name *derivatives*, when associated with pants, describes the various pant lengths that differ from the original source. The following pant lengths have changed little over time. The given names for traditional pant lengths still apply; however, designers do assign "hip" names to describe pant lengths for fashion excitement. Pant lengths depend largely on fashion trends, the type of activity, and the four seasons.

Names and Terms

Short shorts. 1 1/2 inches below the crotch of the inseam and 1 to 1 1/2 inches above the crotch at the side seam.

Shorts. 2 inches below crotch level.

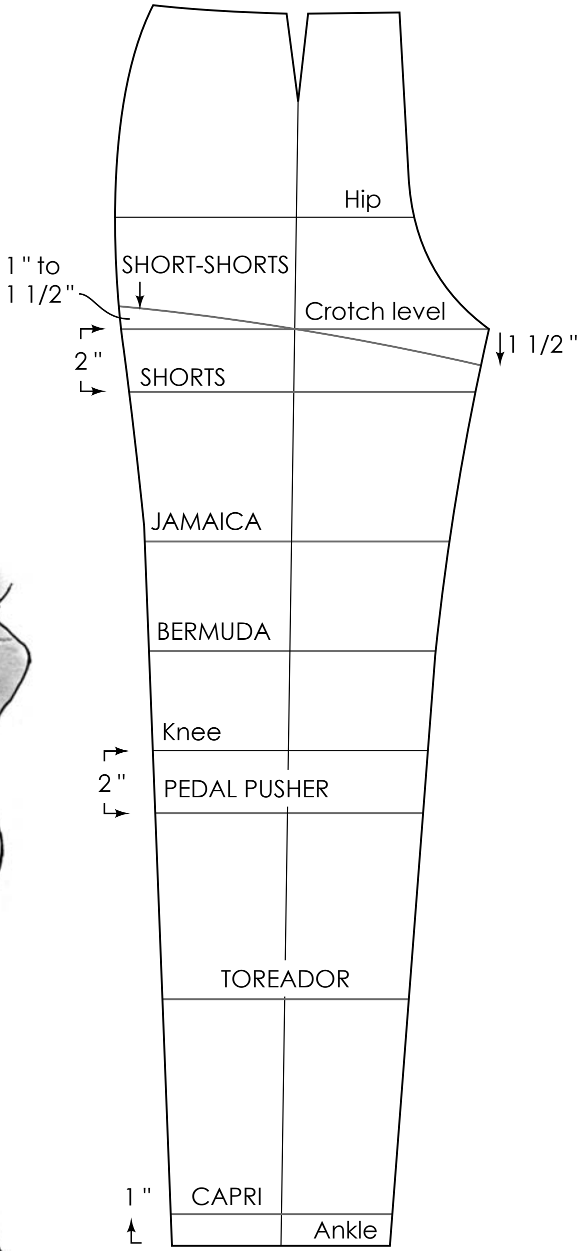
Jamaica. Halfway between the crotch and knee.

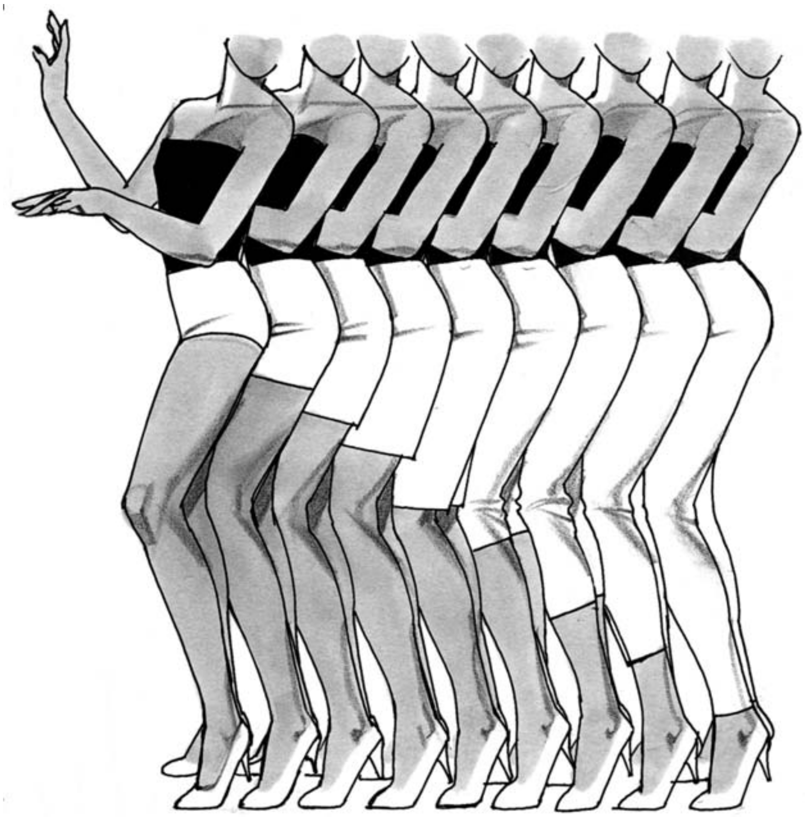
Bermuda. Halfway between Jamaica and knee.

Pedal-pusher. 2 inches down from the knee.

Toreador. Halfway between the knee and ankle.

Capri. 1 inch above the ankle.


Hip
1" to
1 1/2"
SHORT-SHORTS
Crotch level
1 1/2"
2"
SHORTS
JAMAICA
BERMUDA
Knee
2"
PEDAL PUSHER
TOREADOR
1"
CAPRI
Ankle



Developing Pant Derivatives

Pant derivatives can also be used as the basis for other design variations. To complete the following pant derivatives, refer back to the Waist Band section for sewing the waist band; for sewing instructions for a zipper, refer back to Attaching the Zipper.

Short Shorts

Figures 1, 2

- Trace pants to the short-shorts style. Draw slash lines to the crotch curve and cut from paper.

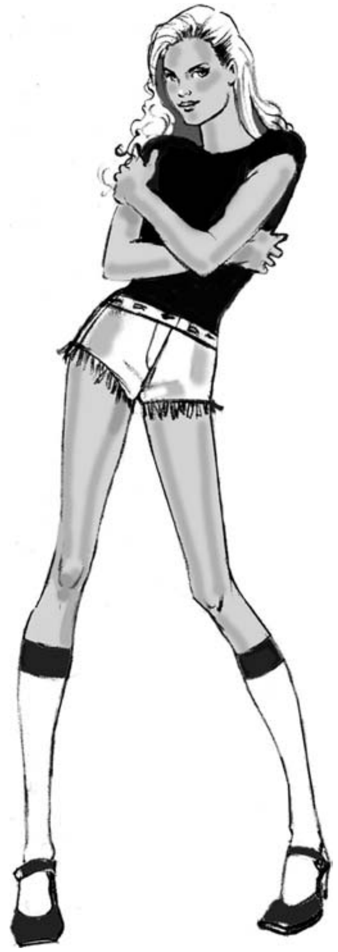


Figure 1

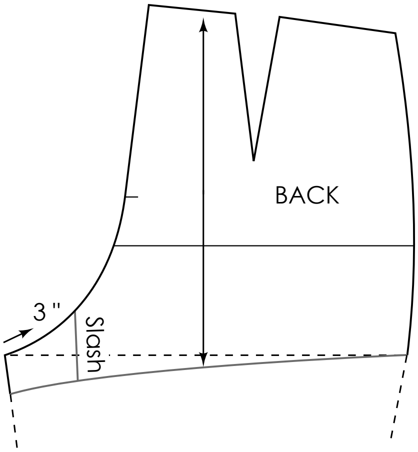
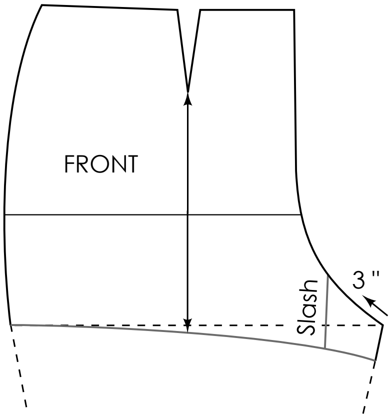

BACK
3 "
Slash

Figure 2


FRONT
Slash
3 "

Figures 3, 4

- Slash to crotch; overlap 1/2 inch and tape.
- Trim 1/4 inch at inseams, ending at crotch point. Retrace and blend hem.
- Add 1/2-inch seams and 1/4 inch at entry.

Figure 3

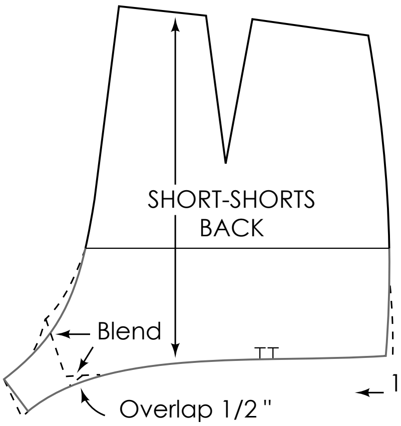

SHORT-SHORTS
BACK
Blend
Overlap 1/2 "

Figure 4

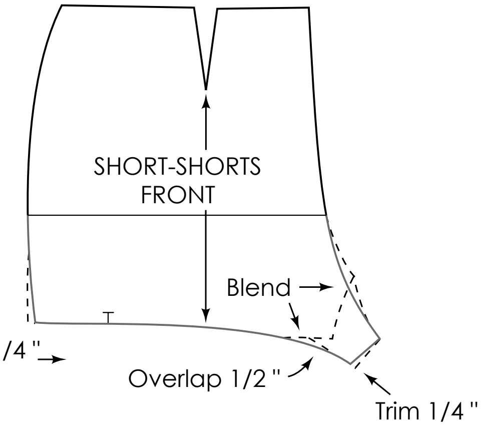
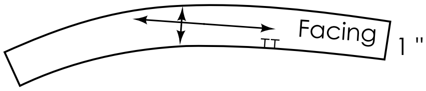

1/4 "
SHORT-SHORTS
FRONT
Blend
Overlap 1/2 "
Trim 1/4 "

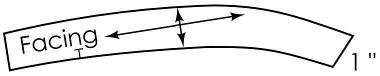
Figure 5 Back Facing



Figures 5, 6 Facings

- Trace each leg facing to a width of 1 inch.
- Add 1/2-inch seams and at entry add 1/4 inch.

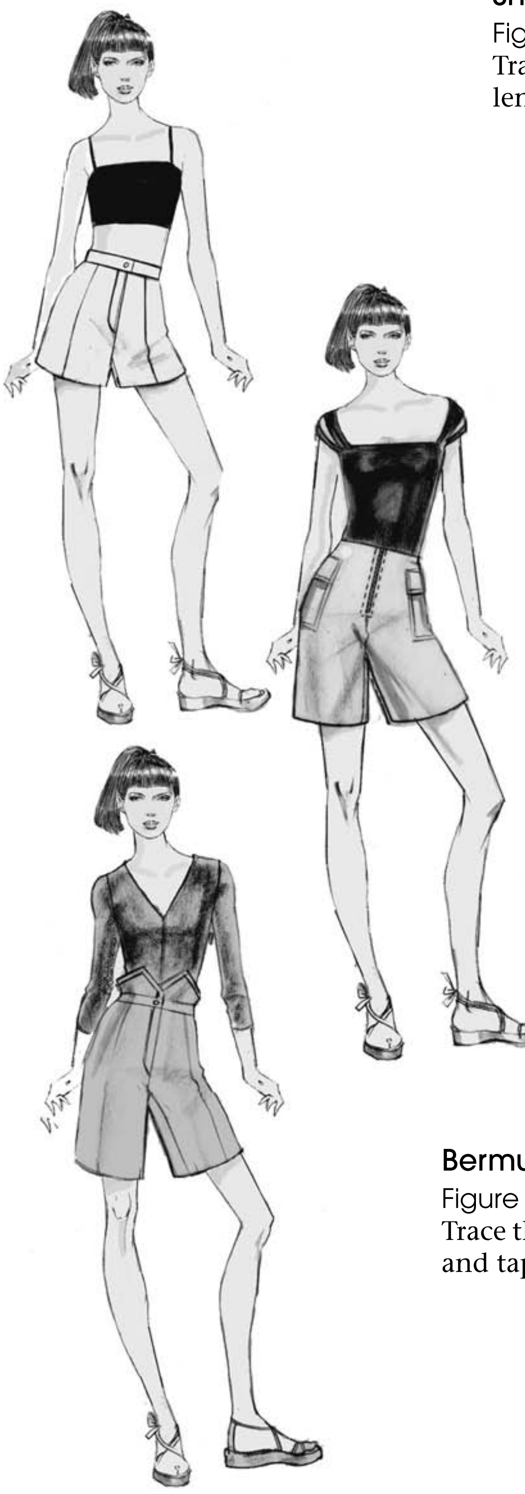
Figure 6 Front Facing



Short, Jamaica, and Bermuda Pants

The front of each pant is illustrated as having slightly tapered leglines. The instructions also apply to the back pant. The following pants can be modified by making the leglines wider or narrower than illustrated and the waistline higher or lower than the natural waistline.

Hem allowance is 1 to 1 1/2 inches. Fold the pattern at the pant length and trace the inseams and outseams. Unfold the pattern.



Shorts

Figure 1

Trace the pant to the shorts length and taper the legline.

Figure 1

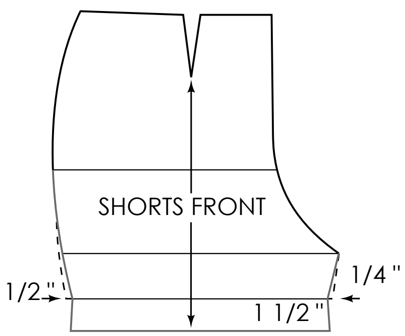
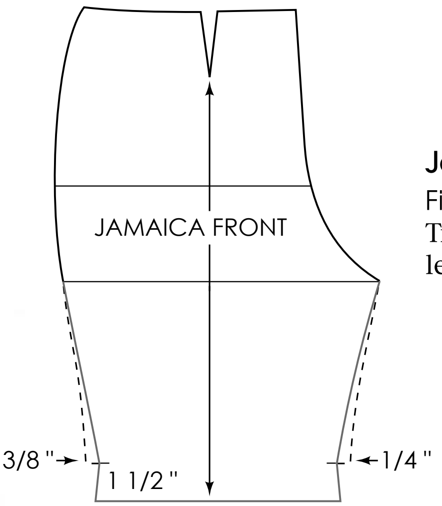


Figure 2



Jamaica Pant

Figure 2

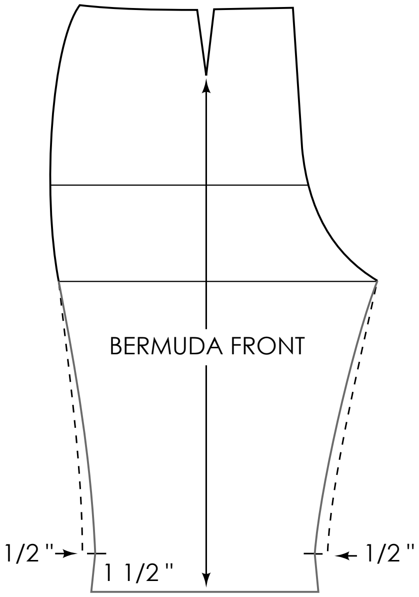
Trace the pant to the Jamaica length and taper the legline.

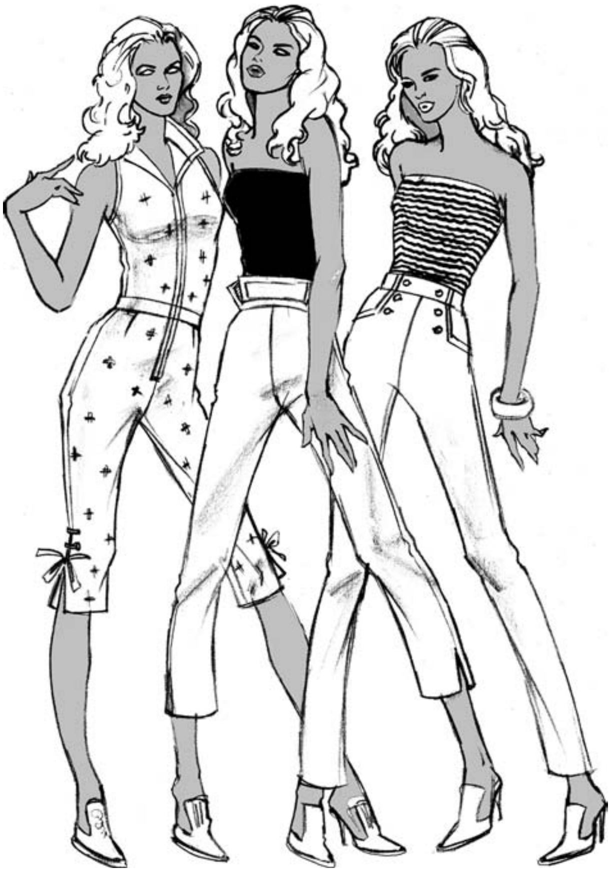
Bermuda Pant

Figure 3

Trace the pant to the Bermuda length and taper the legline.

Figure 3





Pedal-Pushers, Toreador Pants, and Capri Pants

Pant Vents

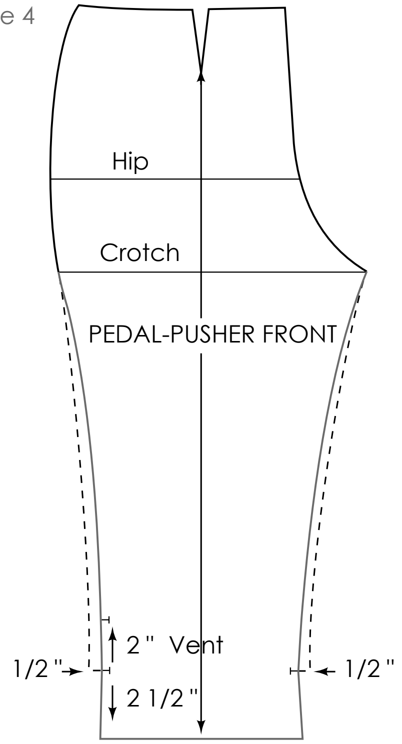
A vent is an opening at the side seam of the pant, giving ease of entry for closely fitted leglines. The length of an entry vent is from 2 to 3 inches. Facings should be at least 1/2 inch beyond the length of the vent. Facings can be traced separately. Fold the hem upward and trace the side seams and inseams. Overlock and top-stitch the seams.

Pedal-Pushers

Figure 4

Trace the pant to the pedal-pusher length and taper leglines.

Figure 4

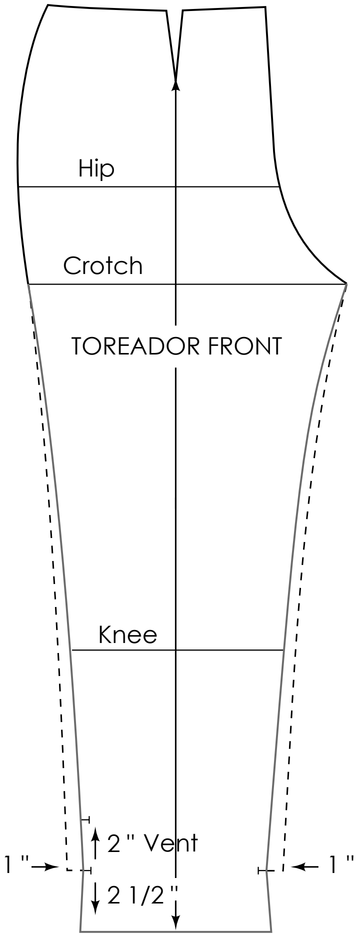

Hip
Crotch
PEDAL-PUSHER FRONT
2 " Vent
1/2 "
1/2 "
2 1/2 "

Toreador

Figure 5

Trace the pant to the toreador length and taper leglines.

Figure 5

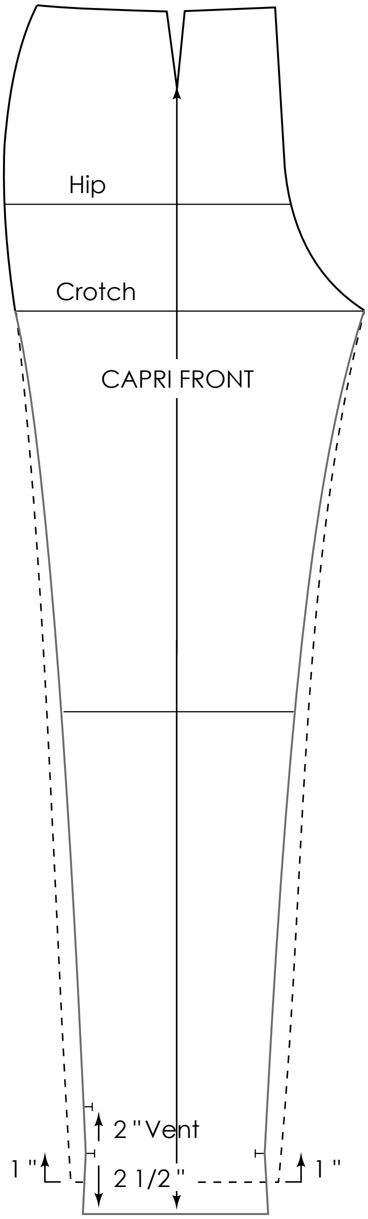

Hip
Crotch
TOREADOR FRONT
Knee
2 " Vent
1 "
1 "
2 1/2 "

Capri

Figure 6

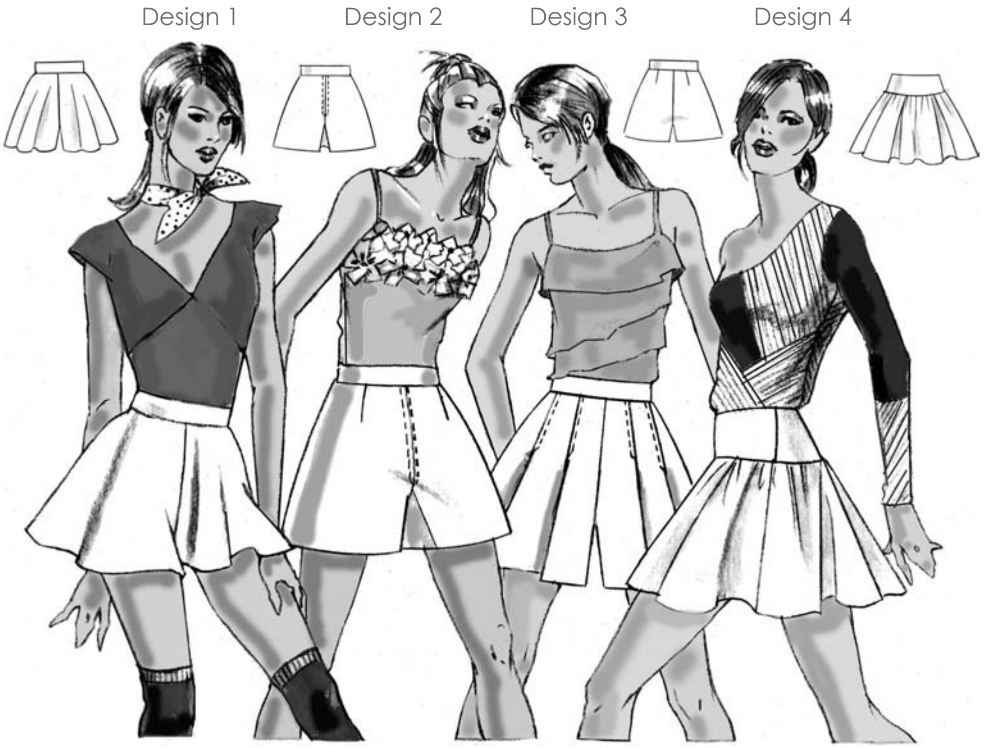
Trace the pant to the capri length and taper leglines.

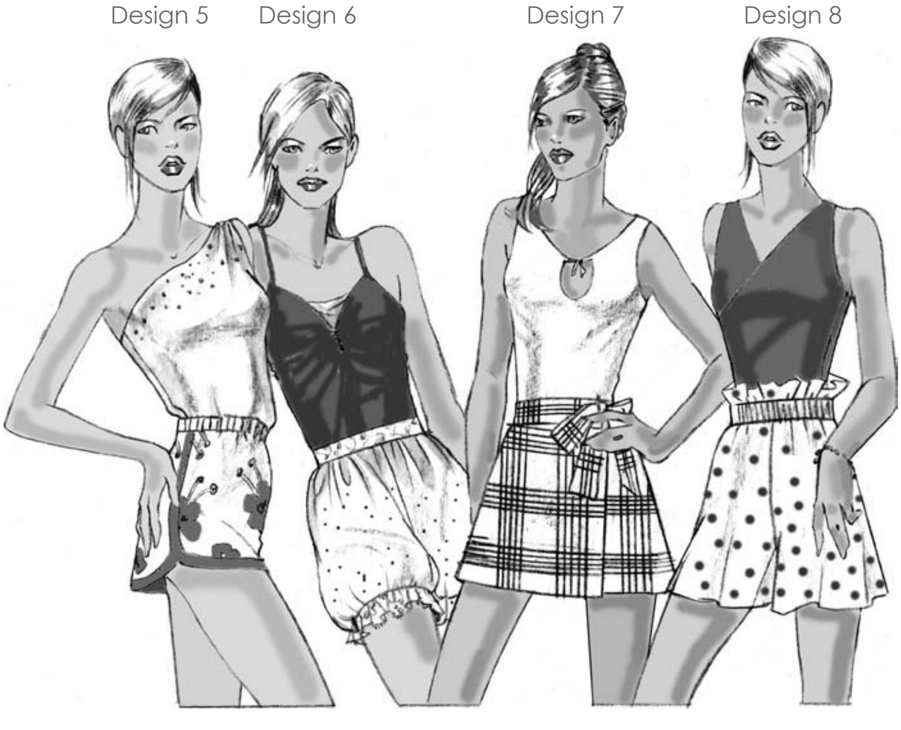
Figure 6


Hip
Crotch
CAPRI FRONT
2 " Vent
1 "
1 "
2 1/2 "

Design Variations

The following practice designs are included to stimulate the imagination of the designer and patternmaker. Each design utilizes concepts and instructions from previously developed skirt and pant designs. For example, Design 1 is based on a flared skirt and Design 8 is based on the baggy pant. Each pant design may be developed to any length desired. If the finished design looks like the sketch, the pattern was correctly developed.


Design 1
Design 2
Design 3
Design 4


Design 5
Design 6
Design 7
Design 8

JUMPSUIT FOUNDATIONS

The jumpsuit can be based on any of the four pant foundation patterns (or any other pant design). It can be developed as a one-piece or two-piece jumpsuit foundation (seamed at waistline) or as a combination of both. Once developed, the foundation should not be altered but used as a base for other designs. Jumpsuit designs with sleeves are developed from the basic or dartless pattern. Suggested styles are illustrated at the end of the jumpsuit series.

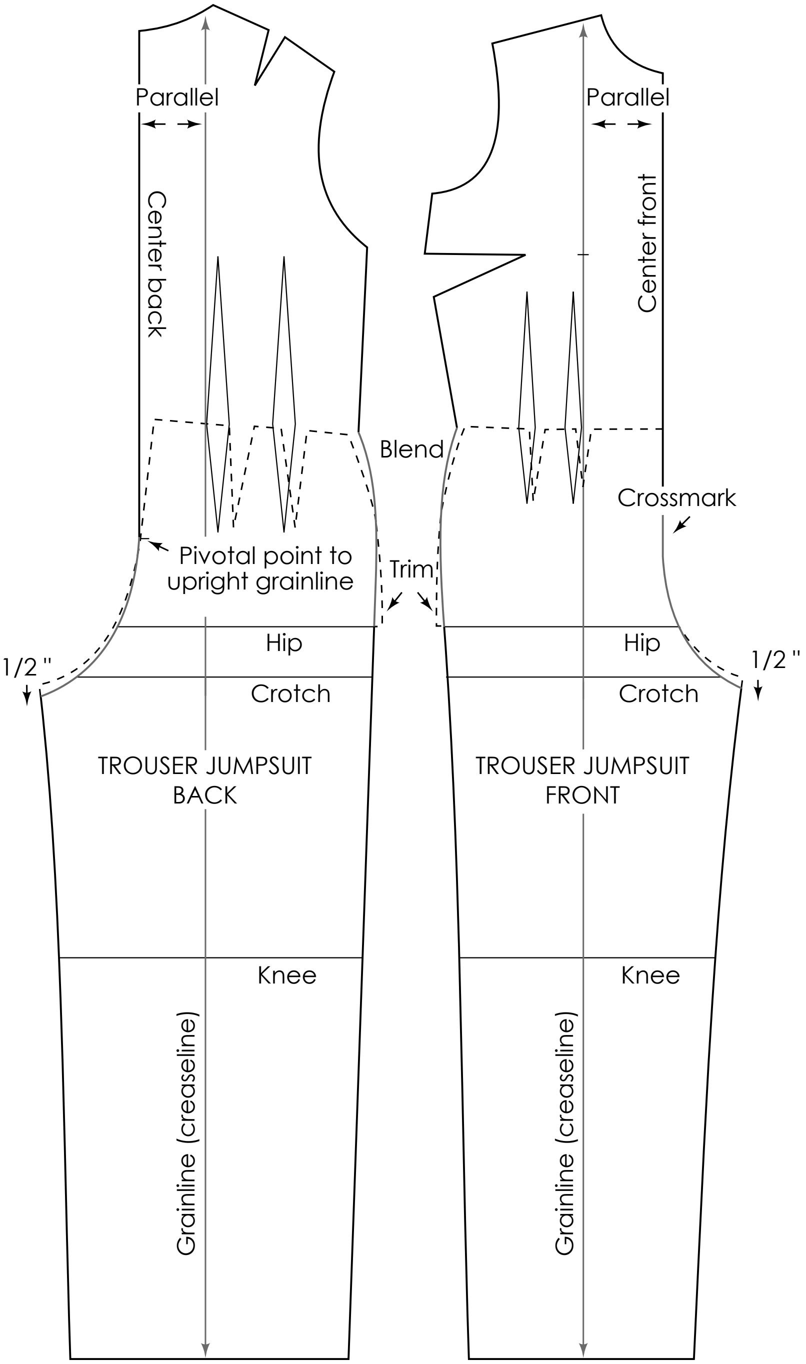
Trouser/Slack Jumpsuit Foundations

Note: The following instructions apply to both the trouser and slack jumpsuit foundations. The trouser pant is illustrated.

Figures 1, 2

- Trace front and back torso and all markings. Crossmark midway between the waist and hip at center front and back.
- Place the pant front and back on the traced torso, matching hip level and center lines of the torso.
- *Important:* The creaseline of the pant *must* be parallel to the center front and center back of the torso. If not, place a push pin on the pant at the crossmark and pivot pant pattern until the creaseline grain is parallel.
- Trace the pant pattern from hem to hipline. Transfer the creaseline of the pant to paper with a push pin. (Broken line indicates untraced pant pattern above hip level.)
- Remove the pattern. Draw grainline through the pant and torso.
- Lower front and back crotch 1/2 inch. Blend the crotch and hipline of the pant with the torso.
- For convenience, draw the bust circumference and contour lines on the bodice.
- The hipline of the torso extending beyond the hipline of the pant is trimmed. Blend.
- Complete the pattern for a test fit. (Draw hip, crotch, and knee lines on muslin.)

Figure 1 Figure 2



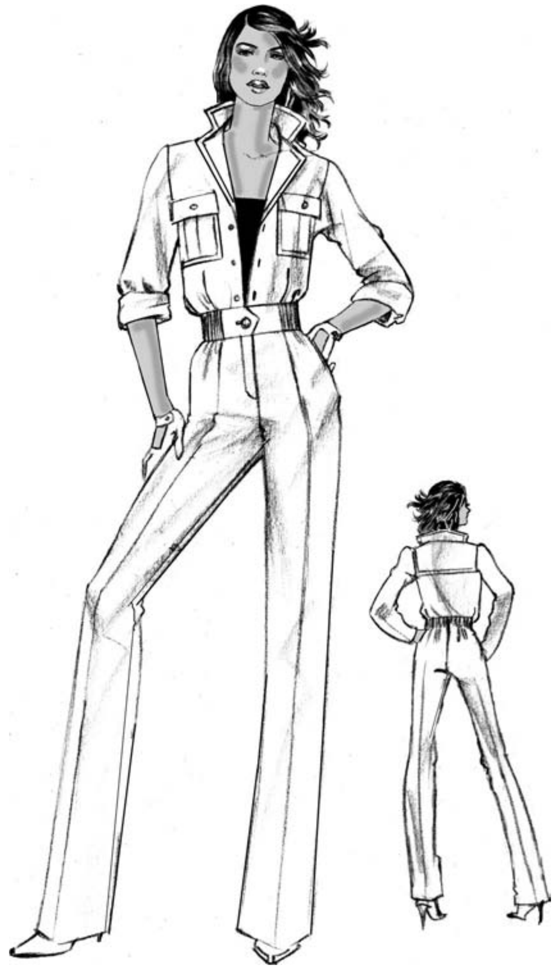
Parallel
Center back
Parallel
Center front
Blend
Crossmark
Pivotal point to upright grainline
Trim
1/2"
Hip
Crotch
Hip
1/2"
Crotch
TROUSER JUMPSUIT BACK
TROUSER JUMPSUIT FRONT
Knee
Knee
Grainline (creaseline)
Grainline (creaseline)

Great Coverall

Any top can be stitched to any pant.

Design Analysis

A yoke shirt, with blousing, is stitched to the trouser foundation pant. Shirt collar, shirt pocket, roll-up sleeves, hidden button closure, loops for a separate belt, side pant pockets, and fly front complete the design.



Pattern Plot and Manipulation

Figures 1a, b Shirt

Trace to 1 1/4 inches below waist. Draw a parallel line across the front and back shirt. Then, taper the front upward 3/4 inch. Place a notch in line with the front pant dart location.

Figures 2a, b Pant

Trace the trouser to the desired length and width. Add the fly 1 1/2 inches wide and 7 3/4 inches long. Draw the shield. (Sew the darts or use as gathers.)

Figure 1a

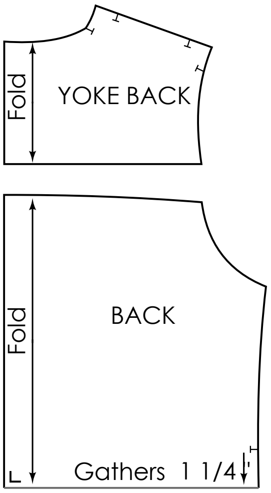

Fold
YOKE BACK
Fold
BACK
Gathers 1 1/4"

Figure 1b

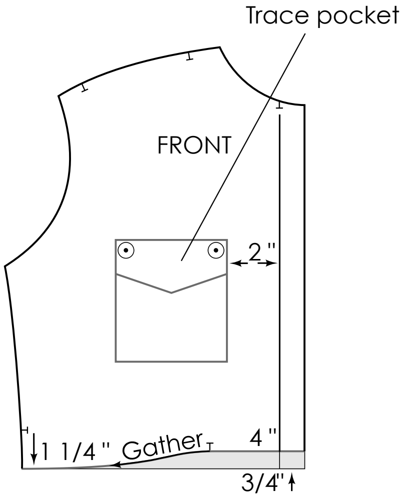

Trace pocket
FRONT
2"
1 1/4"
Gather
4"
3/4"

Figure 2a

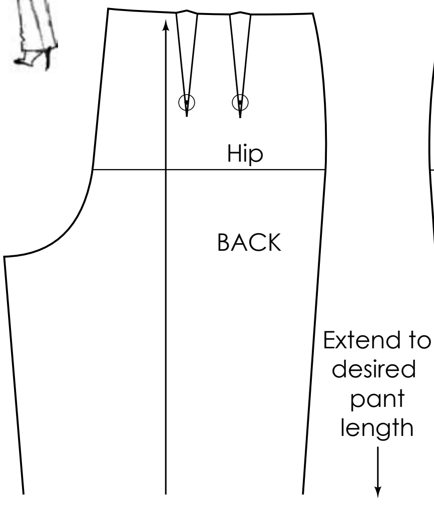
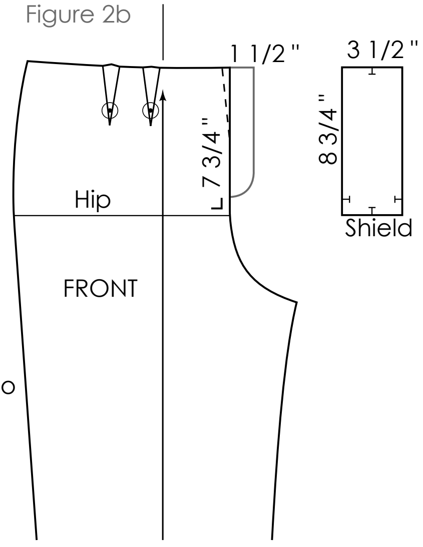

Hip
BACK
Extend to desired pant length

Figure 2b


1 1/2"
3 1/2"
7 3/4"
8 3/4"
Hip
FRONT
Shield

PANT FIT PROBLEMS/CORRECTIONS

Pants having fit problems are not comfortable and tend to interfere with freedom of movement. Stress lines and excess folds distort the appearance of the pant. There are a number of reasons for fit problems—figure deviations, incorrect measurements, and pants cut off-grain, to name a few.

Model #1 Proper Stance

The model should

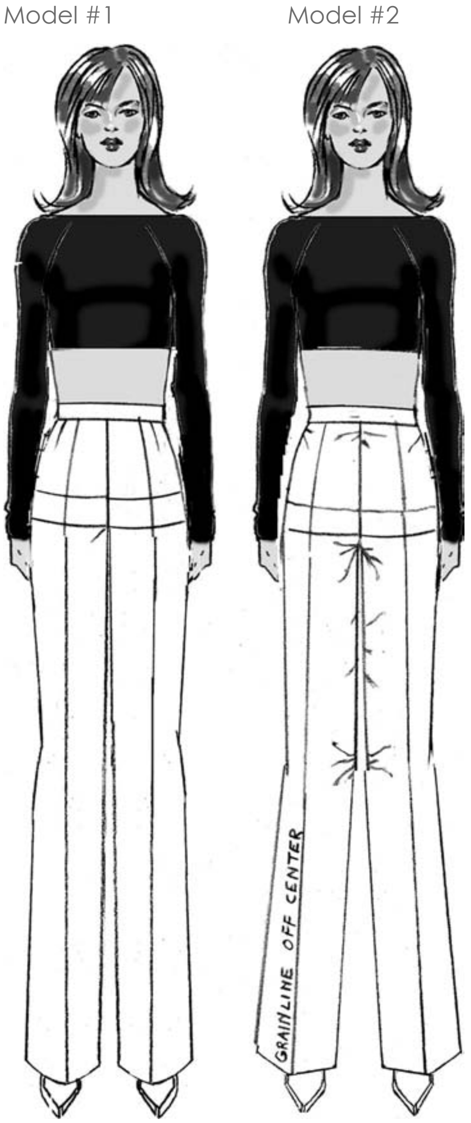
1. stand relaxed
2. stand with weight equally distributed
3. place legs 5 inches apart
4. keep head forward
5. place arms at the side

After analyzing the fit of the pant, the model should walk, bend, and sit to determine the comfort and fit of the pant in motion.

Model #2 Fit Problems

What to look for:

6. stress lines (two-ended fold; directs fitter to problem area)
7. tightness (horizontal stress lines)
8. looseness (vertical folds)
9. creaseline at hem that is not in alignment with the center of the shoe.



Analyzing the Fit of the Pant

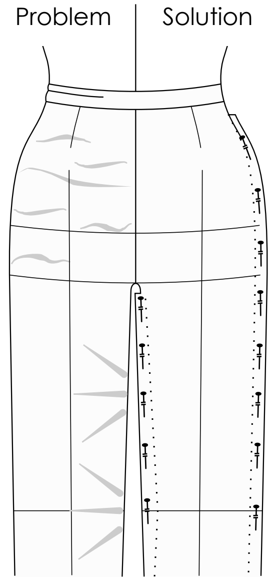
Identify and mark the problem area(s) with a tailor's chalk or pencil. Select the corresponding problem and solution from the following series. Solve one fit problem at a time. It is possible that a correction in one area also solves a fit problem in another.

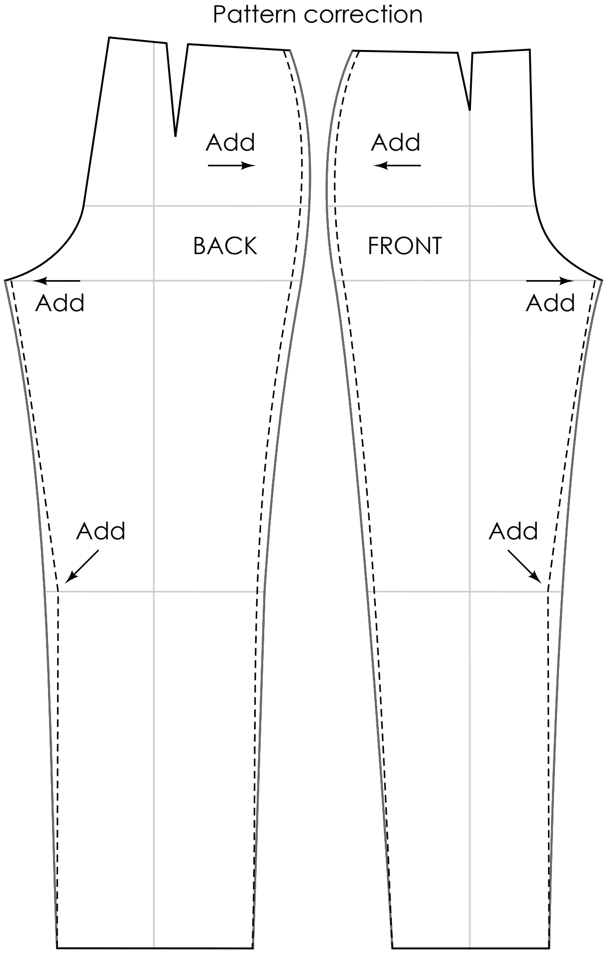
If the model has a high/low waistline (Problem #10), abdominal bulge (Problem #8), or prominent buttocks (Problem #12), correct those problems before proceeding.

1. **Problem:** *Pant is too tight*

   Solutions: Release the side seams and waist band, if necessary. Re-pin to allow fullness. Mark and measure between stitch line and pins.

   Pattern corrections: Add the measured amount to the front and back side seams. Correct the waist band, if necessary.

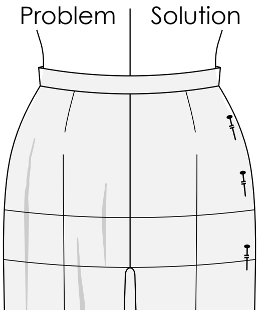

Problem
Solution


Pattern correction
Add
Add
BACK
FRONT
Add
Add
Add
Add

2. **Problem:** *Pant is too loose*

   Solution: Pin excess fabric from the side seams and/or inseams. Include the waist band, if necessary. (Do *not* pull the creaseline off-center when pinning.) Mark and measure between pins and seam.

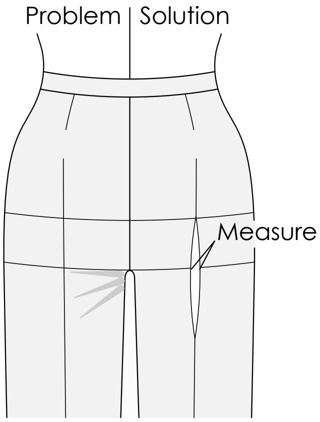
   Pattern corrections: Subtract measured amount from front and back pant (not illustrated).

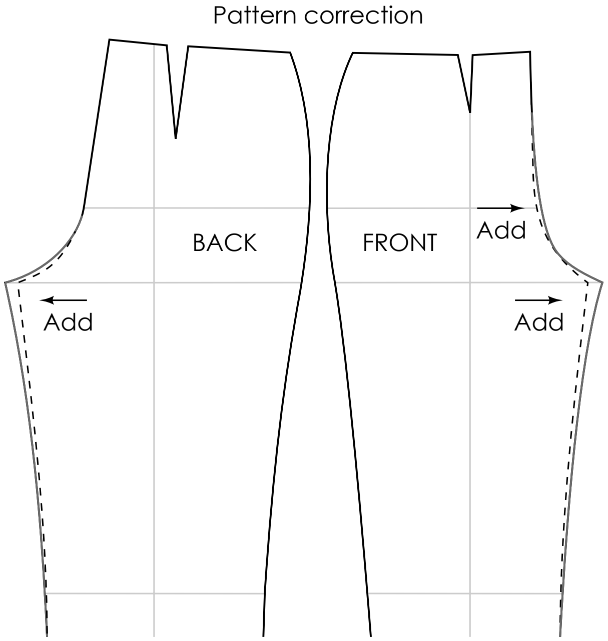

Problem
Solution

3. **Problem:** *Pulling at crotch point (insufficient crotch extension)*

   Solution: Fitting under the crotch is difficult. Slash pant along creaseline at the upper thigh area. Gently tug pant leg to allow the slash to open. Measure the open space.

   Pattern correction: Add half of the measured amount to each inseam. Blend to the knee.

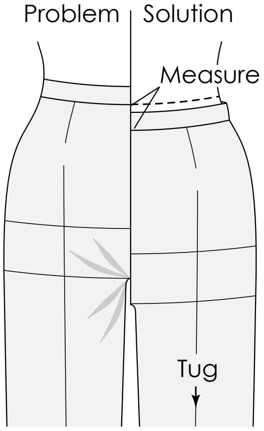

Problem
Solution
Measure

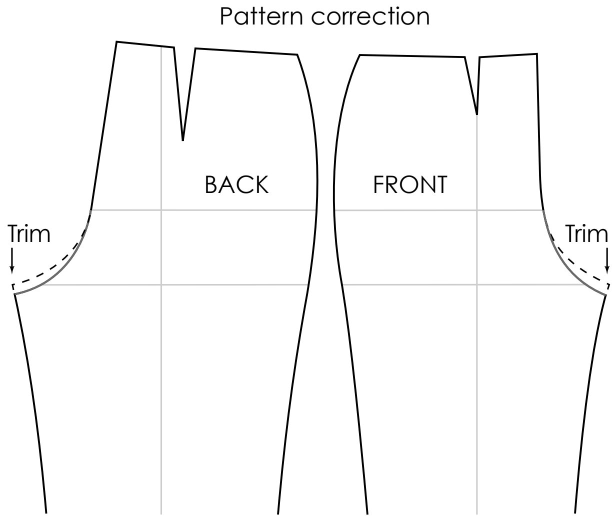

Pattern correction
BACK
FRONT
Add
Add
Add

4. **Problem:** *Crotch too high (stress folds directed to crotch point)*

   Solution: Unbutton waist band and unzip. Gently tug pant downward to a comfortable crotch level. Measure from the waist to waist band.

   Pattern correction: Lower the crotch point of the front and back to the measured amount. Blend to center line.

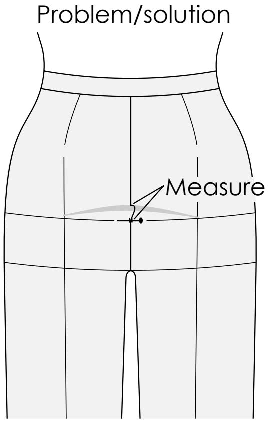

Problem
Solution
Measure
Tug

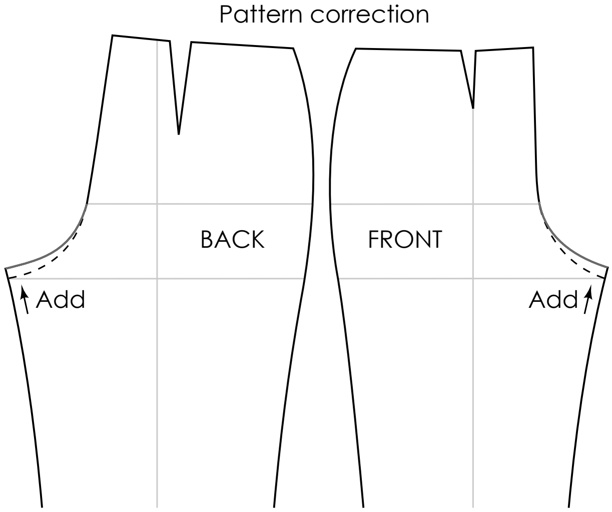

Pattern correction
BACK
FRONT
Trim
Trim

5. **Problem:** *Crotch too low*

   Solution: Pin a fold at the center front to lift the pant to a comfortable level. Measure the pin fold.

   Pattern correction: Raise the crotch point to the measured amount.

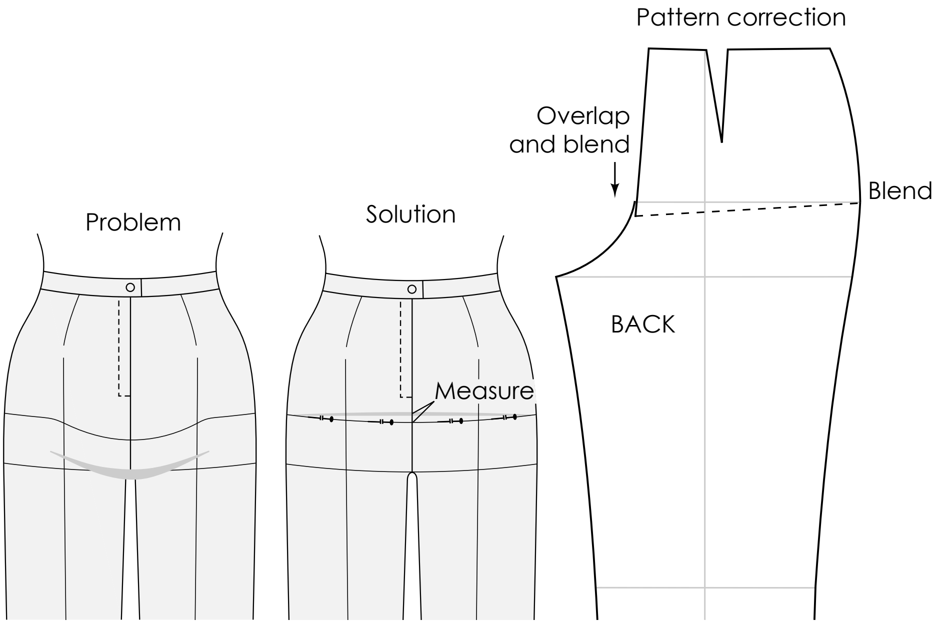

Problem/solution
Measure


Pattern correction
BACK
FRONT
Add
Add

6. **Problem:** *Back crotch droops (caused by flat buttocks)*

   Solution: Pin unneeded excess across the back. Measure this amount.

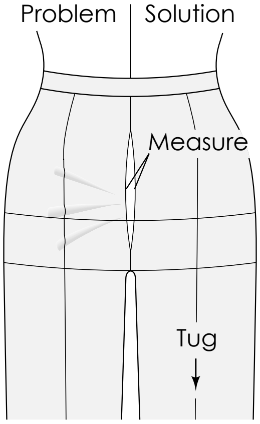
   Pattern corrections: Slash to, but not through, the center back. Overlap the measured amount. Blend with the center back.


Problem
Solution
Measure
Pattern correction
Overlap and blend
Blend
BACK

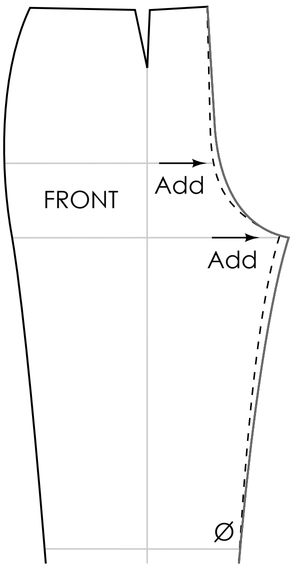
7. **Problem**: *Stress at center front (insufficient room at the pubic area)*

   Solution: Release the center line and gently tug at the pant leg to allow the needed room at the center line. Measure the space.

   Pattern correction: Add to the center line *half* the measured amount. Add an equal amount to the crotch point.


Problem
Solution
Measure
Tug

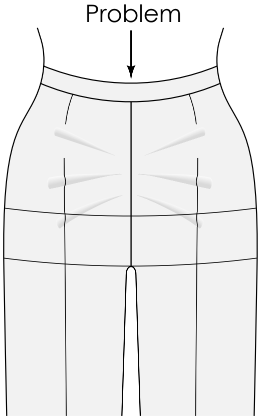
Pattern correction

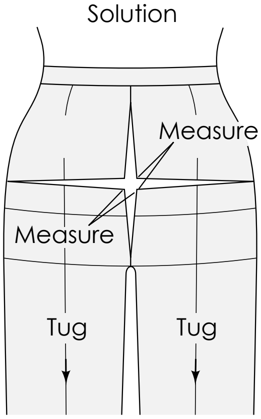

FRONT
Add
Add
Ø

8. **Problem**: *Stress from the abdomen (waist band pulled downward)*

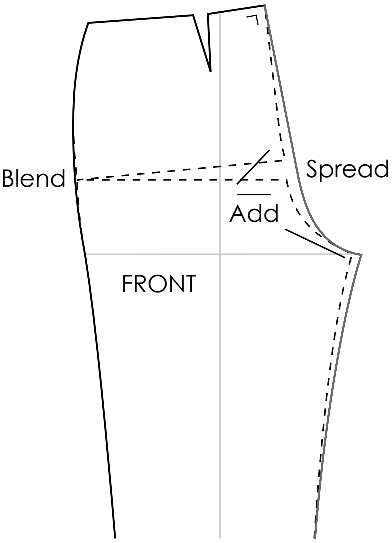
   Solution: Release the center line and slash to side seams. Tug and measure the width and length of the open space at the intersection.

   Pattern corrections: Slash to, but not through, the side seam and spread the measured amount. Add to the center line and crotch point half the measured amount. Draw the adjusted center line, blending with crotch curve.




Solution
Measure
Measure
Tug
Tug

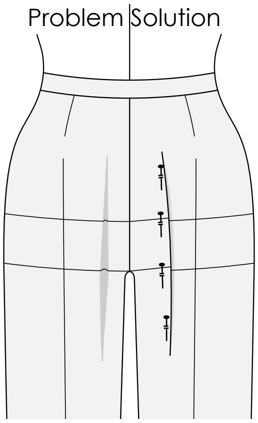
Pattern correction


Blend
Spread
Add
FRONT

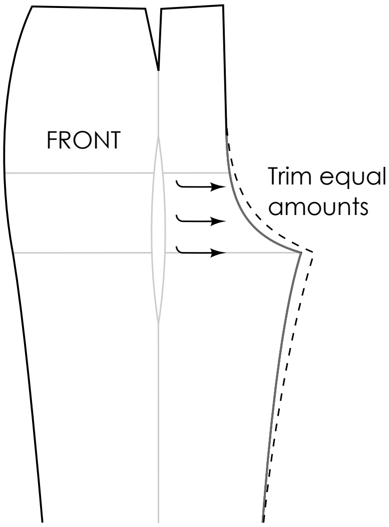
9. **Problem**: *Vertical fold at center front and or back*

   Solution: Pin at the fullest part of the excess and allow to vanish at each end. (Do *not* pull the creaseline off-center when pinning excess.) Pencil mark the pins before removal and measure widest part of the opening.

   Pattern corrections: Use the marked pinned section to draw the shape on the pattern. Mark equal amounts at the center line. Draw a blending line to the crotch curve. Trim the excess. Adjust the grainline and legline.


Problem
Solution

Pattern correction

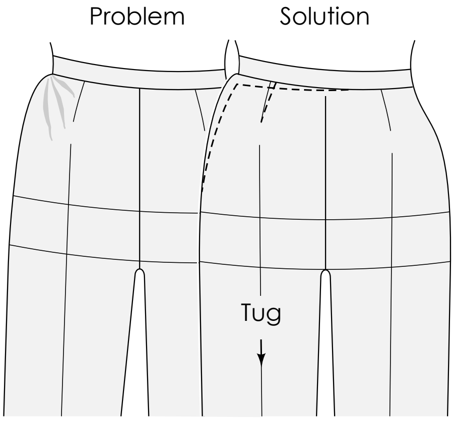

FRONT
Trim equal amounts

10. **Problem:** *Hemline out of alignment (indicates a high/low waistline or dominant bulge)*

See Model #2 at the beginning of this section. The creaseline does not align with the center of the foot or shoe.

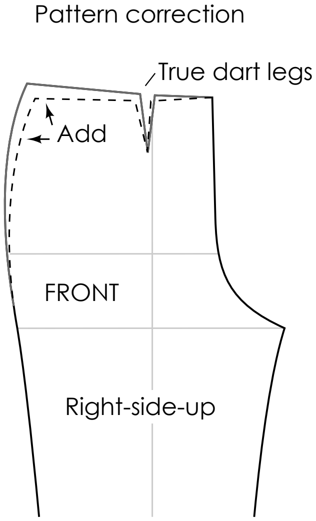
Solution: Release the side seam to the hip level of the front and back pant. Release the darts. Gently tug the pant leg until the creaseline is in the center of the shoe. Re-pin the side seams and darts, allowing the necessary ease for a good fit.

Pattern correction: Add needed amount to the front pant, as shown. Repeat on the back pant.



Problem

Solution

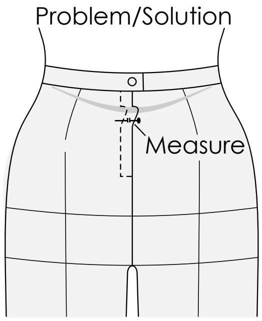


Pattern correction

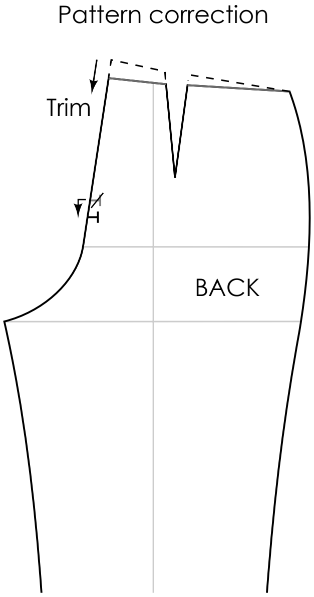
11. **Problem:** *Back—excess under waist band (sway back or hip area too tight, see problem 1)*

Solution: Pin the excess fold under the belt. Measure this amount.

Pattern correction: Trim the measured amount from the waist. Re-mark the zipper notch.



Problem/Solution

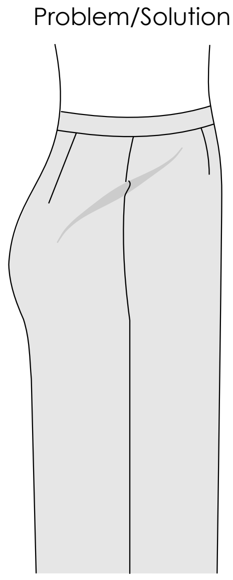


Pattern correction

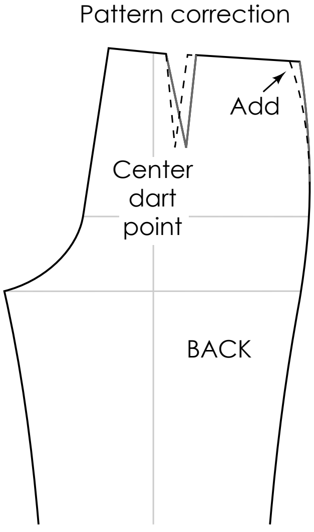
12. **Problem:** *Diagonal pull at the side seam (insufficient back dart intake for dominant buttocks)*

Solution: Release the side seam and back dart. Smooth the fabric upward from hip to waist. The excess is taken up by the back dart(s). Mark the new side seam and adjusted dart leg.

Pattern correction: Use the muslin as a guide for correcting the pattern.



Problem/Solution



Pattern correction

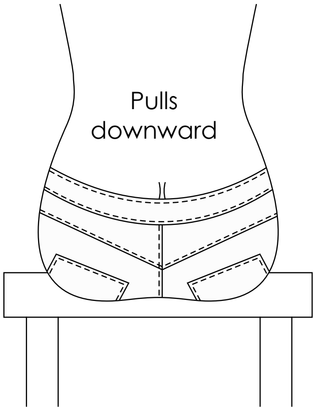
13. Problem: *Back pant pulled downward from a sitting position.*

a. **Low-cut pant**

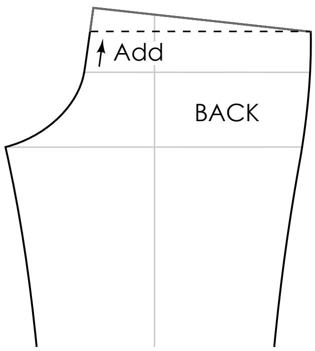
Solution: Add 1 to 2 inches to the center back, blending to zero at the side seam. If necessary, add to the waist at the side seams of the back and front pant, blending to zero at the center front pant.

Pattern correction: Add to the pant measured amount.

Problem/Solution


Pulls
downward

Pattern correction

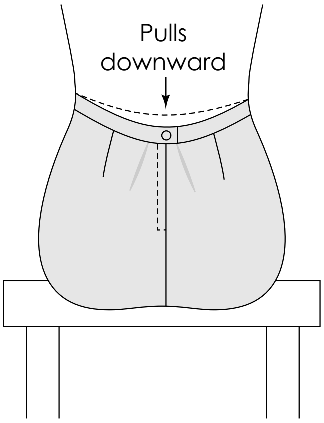


b. **Basic waist band pant**

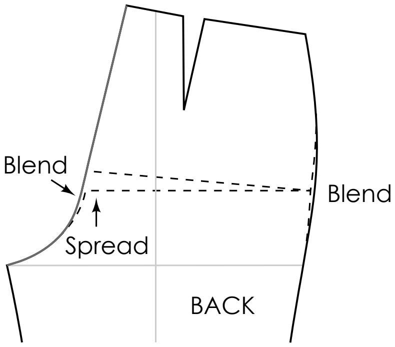
Solution: Measure from the waist to the top of the waist band.

Pattern correction: Slash from the center back to, but not through, the side seam. Spread the measured amount. Blend.

Problem/Solution


Pulls
downward

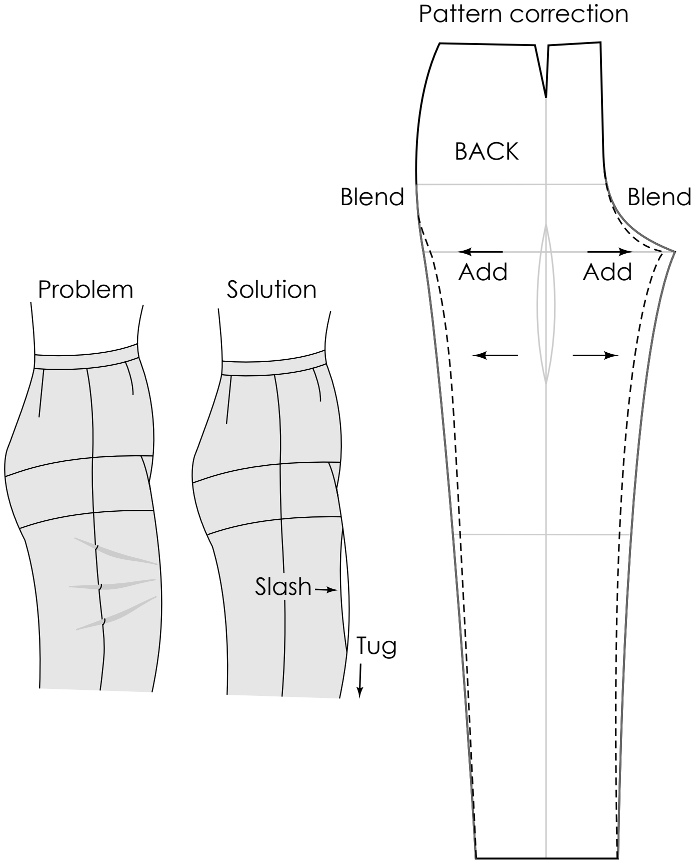
Pattern correction


Blend
Blend
Spread
BACK

14. Problem: *Diagonal stress lines directed toward thigh and calf (dominant thigh)*

Solution: Slash through the creaseline where stress appears. Gently tug the pant leg to allow the slash to open until stress disappears. Measure at the widest area. Mark this area. Remove the pant.

Pattern correction: Mark the pattern where the widest space is located. Add 3/4 of the amount at the crotch point and 1/4 the amount to the side seam. Use illustrations as a guide. Adjust the creaseline (grainline) if necessary.


Pattern correction
BACK
Blend
Blend
Add
Add
Problem
Solution
Slash
Tug

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: ______, plus 2″ ease ______
2. Waist: ______, plus 1″ ease ______
3. Abdomen: ______
4. Hip: ______, plus 2″ ease ______

Upper Torso (Bodice)

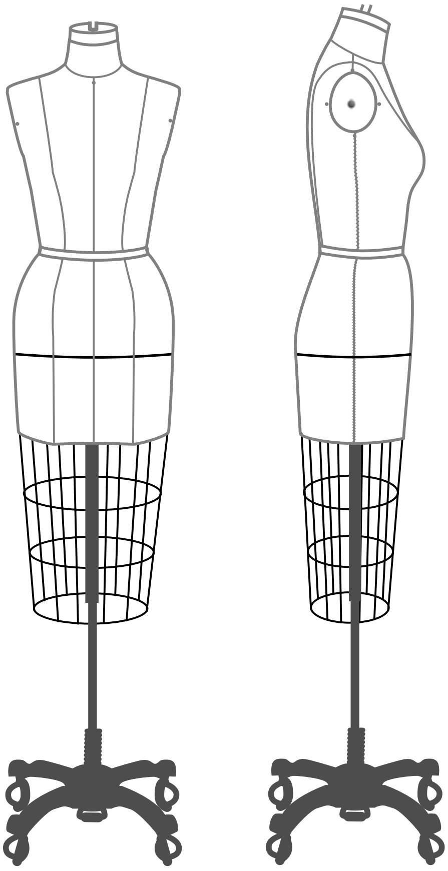
5. Center length: F ______, B ______
6. Full length: F ______, B ______
7. Shoulder slope: F ______, B ______
8. Strap: F ______, B ______
9. Bust depth: ______, radius ______
10. Bust span: ______
11. Side length: ______
12. Back neck: ______
13. Shoulder length: ______
14. Across shoulder: F ______, B ______
15. Across chest: ______
16. Across back: ______
17. Bust arc: ______
18. Back arc: ______
19. Waist arc: F ______, B ______
20. Dart placement: F ______, B ______

Lower Torso (Skirt/Pant)

22. Abdomen arc: F ______, B ______
23. Hip arc: F ______, B ______
24. Crotch depth: ______
25. Hip depth: C.F. ______ C.B. ______
26. Side hip depth: ______
27. Waist to ankle: ______
    Waist to knee: ______
    Waist to floor: ______
28. Crotch length: ______
    Vertical trunk: ______
29. Upper thigh: ______
    Mid-thigh: ______
30. Knee: ______
31. Calf: ______
32. Ankle: ______
    Foot entry: ______

Form

Form make and type ______
Size ______ Year ______



Special Information

Set form to desired height and measure the following:

C.F. waist to floor ______
C.B. waist to floor ______
C.B. neck to floor ______

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

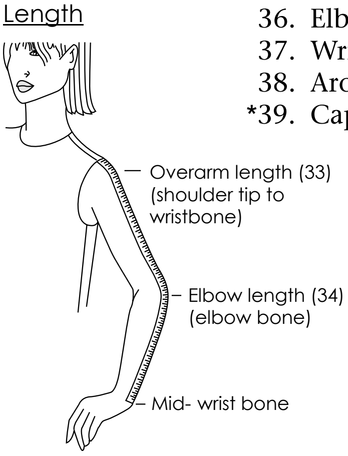
22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

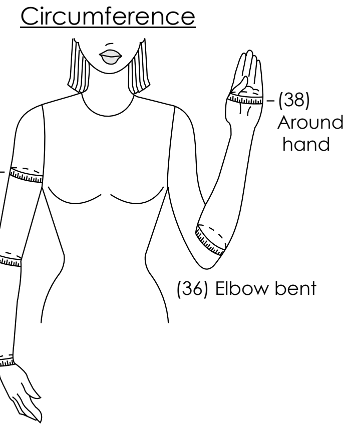
Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____


Length
Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone


Circumference
(38) Around hand
(35) Biceps
(36) Elbow straight
(36) Elbow bent
(37) Wrist

*Measuring the Arm

Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

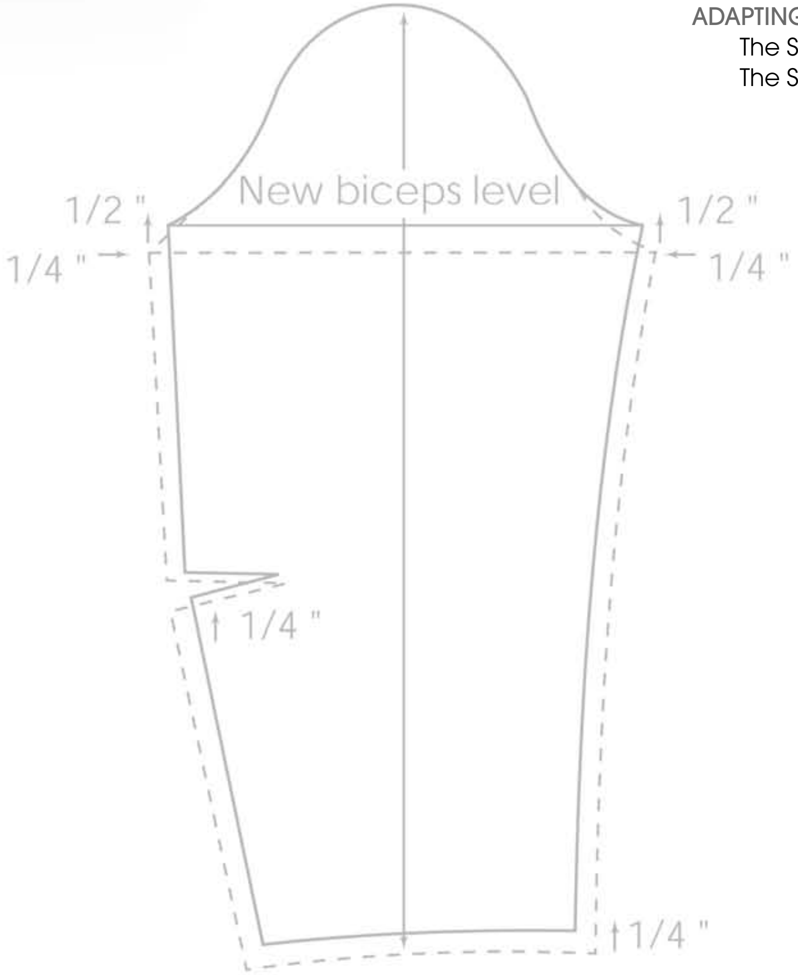
This page intentionally left blank

Knits—Stretch and Shrinkage Factors

From Chapter 27 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

Knits—Stretch and Shrinkage Factors

INTRODUCTION
STRETCH AND RECOVERY FACTOR
  Stretch Factor
  Recovery Factor
  Variance in Stretch
STRETCH AND RECOVERY GAUGE
CLASSIFICATION OF KNIT FABRICS
DIRECTION OF STRETCH
ADAPTING PATTERNS TO KNITS
  The Shrinkage Factor
  The Stretch Factor



INTRODUCTION

Knits are some of the most popular fabrics in the market today, primarily for the following reasons:

- *Structure:* Knit fabrics are made of natural and synthetic fibers.
- *Versatility:* Knits are suitable for dressy, daytime, and activewear.
- *Stretchability:* Knits have the capacity to stretch in length, width, or both (in addition to the bias stretch common to all fabrics).

Many manufacturers and designers devote part or all of their lines to knit designs. The patternmaker should be knowledgeable about the special characteristics of knits and their stretch and recovery factors so that a good fit can be achieved with few corrections. This is accomplished by modifying the pattern before cutting in knit. DuPont has launched a patented process—Sorona polymer (made from a petro chemical source and also from a renewable source—corn). The latest-patented process called Lycra® 2.0-Xtra Life® Lycra® fiber was developed for swimwear. The composition is mainly of elastomer and other stretch fibers. Its key characteristics are: softness, stretch and recovery hand, stain resistance, crush resistance, quick and easy dyeing, fast drying, and resistance to chlorine and ultraviolet degradation.

STRETCH AND RECOVERY FACTOR

The ability of a knit fabric to stretch and return to its original shape (length and width) is referred to as the fabric's *memory.* (See the stretch and recovery gauge on the next page.)

Stretch Factor

The *stretch factor* is the amount of stretch per inch that occurs when the knit is stretched to its maximum length and width. The stretch factors of knits range from 18 to 100 percent or more.

Recovery Factor

The *recovery factor* is the degree to which a knit will return to its original shape after being stretched. Knits with good recovery are those that return to their original length and width when released. If the fabric does not return to its original dimension, or close to it, the garment will eventually sag on the body and lose some of its original shape.

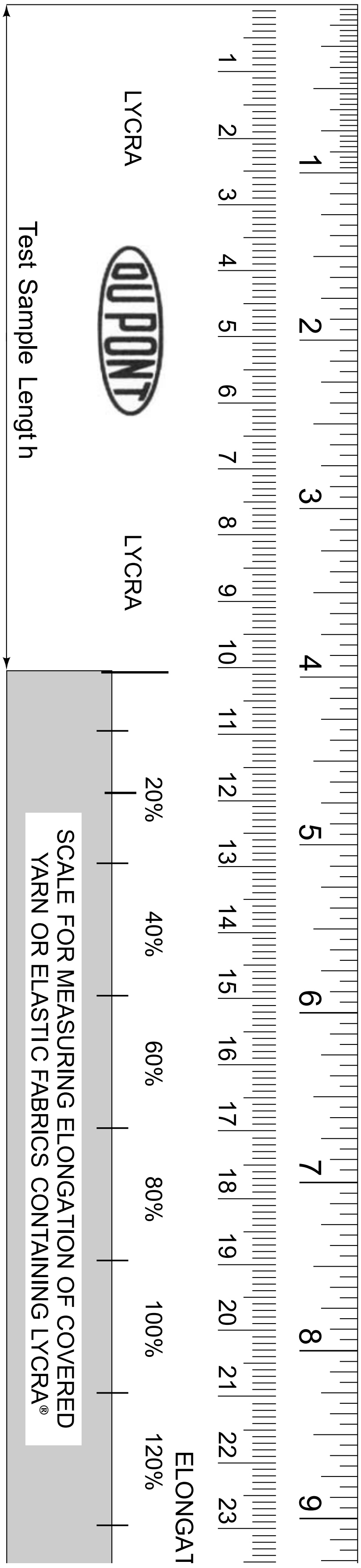
Variance in Stretch

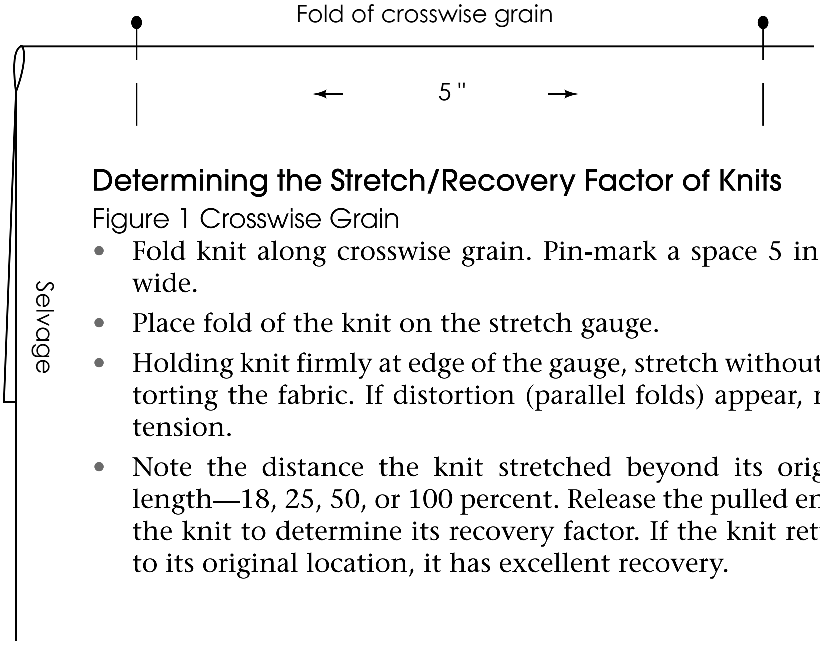
There is a variance in the degree of stretch among knits and the degree of stretch between the length and width of each knit. Knits that stretch in both directions are two-way stretch knits.

If some of the stretch is not removed from garments made with a blended Lycra®, the garment will sag on the figure. To remove stretch, the pattern is reduced in its length and width as designated by the stretch of the fabric. To determine the stretch of knits, use the stretch gauge on the next page. Buy the type of knit appropriate to the garment's use.

STRETCH AND RECOVERY GAUGE

The ruler at the edge of the page is used to determine the stretch/recovery factor of knits. *Suggestion:* Copy the ruler, glue on cardboard, and take it with you when testing and buying knits. To use the stretch gauge ruler, follow the instructions.


LYCRA
DU PONT
LYCRA
Test Sample Length
SCALE FOR MEASURING ELONGATION OF COVERED YARN OR ELASTIC FABRICS CONTAINING LYCRA®
20%
40%
60%
80%
100%
120%
ELONGAT
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
1 2 3 4 5 6 7 8 9


Fold of crosswise grain
5"
Selvage

Determining the Stretch/Recovery Factor of Knits

Figure 1 Crosswise Grain

- Fold knit along crosswise grain. Pin-mark a space 5 inches wide.
- Place fold of the knit on the stretch gauge.
- Holding knit firmly at edge of the gauge, stretch without distorting the fabric. If distortion (parallel folds) appear, relax tension.
- Note the distance the knit stretched beyond its original length—18, 25, 50, or 100 percent. Release the pulled end of the knit to determine its recovery factor. If the knit returns to its original location, it has excellent recovery.

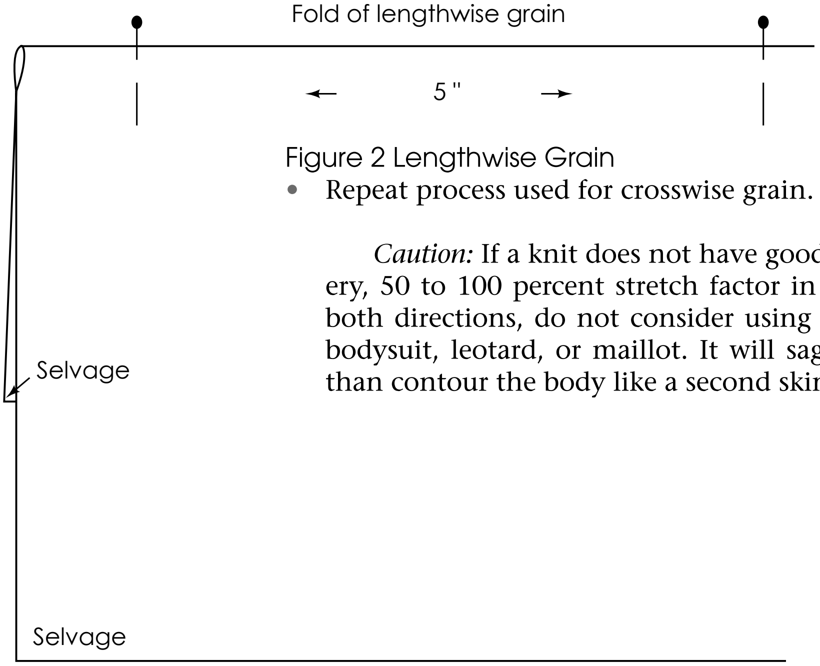

Fold of lengthwise grain
5"
Selvage
Selvage

Figure 2 Lengthwise Grain

- Repeat process used for crosswise grain.

Caution: If a knit does not have good recovery, 50 to 100 percent stretch factor in one or both directions, do not consider using it for a bodysuit, leotard, or maillot. It will sag rather than contour the body like a second skin.

This method is used for close-fitted and contour-type garments (bodysuit, leotard, swimwear) in which stretch is the most important factor. The original pattern is modified (reduced in length and width) to compensate for the stretch. Read the classification of knits on the next page.

CLASSIFICATION OF KNIT FABRICS

Knits come in many fibers: cotton, antron, and nylon, to name a few. When combined with Lycra spandex or Lastex latex, the fabric will vary in weight, texture, direction, and degree of stretch and shrinkage.

Lycra (spandex) is a manufactured fiber in which the fiber-forming substance is a long-chain synthetic polymer comprised of at least 85 percent of a segmented polyurethane. The DuPont Company introduced the first spandex fiber called Lycra in 1958. DuPont (the leader) has issued standards for Lycra spandex for activewear garments:

- Must have a minimum of 12.5 percent elongation
- Must withstand power of at least 0.6 pounds per square inch to ensure good recovery under wet and dry conditions.
- Must have zero pullback after 3,000 flex cycles.
- Must have a Lycra content of at least 0.6 ounces per square yard to ensure working stretch.

Lycra spandex may be combined with antron, nylon, and cotton for swimwear, bodysuits, and leotards. Spandex has the ability to spring back to its original shape when stretched (referred to as its memory). After repeated stretching, it shows only a small increase in length.

Lycra allows the body to move with complete freedom when in a flexed position:

Across the back—flex movement from 13 to 16 percent

Elbow Flex

Length—35 to 40 percent

Circumference—15 to 22 percent

Seat flex: Across—4 to 6 percent

Knee Flex

Length—35 to 45 percent

Circumference—12 to 14 percent

There are single-knit and double-knit fabrics; however, knits can generally be classified in the following ways:

Stable (firm) knits. A stretch factor of 18 percent on the crosswise grain (example: 5 inches will stretch to 5 7/8 inches). This type of knit has a limited degree of stretch and will retain its original shape well. Fit is similar to that of a garment cut in a woven fabric. Example: double knit in any fiber.

Moderate-stretch knits. A stretch factor of 25 percent on the crosswise grain (example: 5 inches stretches to 6 1/4 inches). Combines characteristics of both stable and stretchy knits. Generally used for sportswear when stretch is used for comfort and a close fit but should not be used for garments contouring the figure. Example: nylon tricot.

Stretchy knits. A stretch factor of 50 percent on the crosswise grain with 18 to 50 percent on the straightgrain. (example: 5 inches will stretch to 7 1/2 inches). Because it is stretchy and light-weight, stretchy knit drapes well and is used for garments that contour the figure. This type of knit is suitable for bodysuits, leotards, maillots, and clinging dresses and tops (provided the knit has an excellent recovery factor). Example: cotton/spandex, nylon/spandex, cotton/latex, nylon/latex, or any fabric containing spandex or latex.

Super-stretch knit. A stretch factor of 100 percent in the lengthwise and crosswise grain (example: 5 inches stretches to 10 or more inches). Its excellent stretch and recovery make it suitable for bodysuits, leotards, and skiwear, as well as tops. The elastic fiber of this type of knit can stretch many times its length and yet return to its original measurements. Examples: Any fiber blended with spandex or latex.

Rib knits. A stretch factor of 100 percent (1 × 1 ribs will stretch less than 2 × 2 or 3 × 2). Used for tops and banding (example: the "knit two, purl two" traditional wristband stitch). Rib knits are dependent on the *knit pattern* as well as on the fibers used.

DIRECTION OF STRETCH

Knits can also be classified by the direction of stretch in the following ways:

Warp stretch. Stretch yarns run lengthwise.

Filling stretch. Stretch yarns run crosswise.

Two-way stretch. Stretch yarns run in both the length and crosswise directions.

To utilize the built-in stretch of knits, the maximum stretch should *encircle* the figure when knits are used for dresses, jackets, pants, and tops. The maximum stretch should go *up and down* the figure for bodysuits, leotards, jumpsuits, and skiwear to allow for maximum mobility.

ADAPTING PATTERNS TO KNITS

There are two reasons for adapting a pattern to knit fabrics: The shrinkage factor requires the size of the pattern to be enlarged, and the stretch factor requires the size of the pattern to be reduced. The choice is determined by the type of knit and the use of the garment.

White (C) = enlarged pattern.

Shaded (B) = original pattern.

White (A) = cloth pattern.

The Shrinkage Factor

For loosely fitted garments, shrinkage is considered to be the most important factor. Therefore, the pattern is enlarged to compensate for shrinkage. To do this, the shrinkage factor must be known.

Enlarging the Pattern

Figures 1, 2

- Cut the garment parts. (The torso and sleeve are used as the example.)
- Wash and dry the fabric. Place the cloth pattern on top of the paper pattern. Place on paper, aligning the center line and waist of the torso and the grainline and biceps line of the sleeve. Pin to secure. (White area indicates the garment part [A], the shaded area indicates the original pattern [B], and the outside white area indicates the new enlarged pattern [C].)
- *Enlarging the pattern for shrinkage:* Draw guidelines out from the corners of the fabric pattern and working patterns. Measure the distances from the cloth pattern and the working pattern at each guideline. Use these measurements to mark the distances out from the working pattern at each location. Draw the new pattern by connecting lines from one mark to the next, blending curved lines. True the patterns when cut.
- *Reducing the pattern for stretch:* Trace the A patterns.

Note: Placement of garment parts on the pattern may look different from the illustrations, but the process for developing the enlarged pattern remains the same.

Figure 1

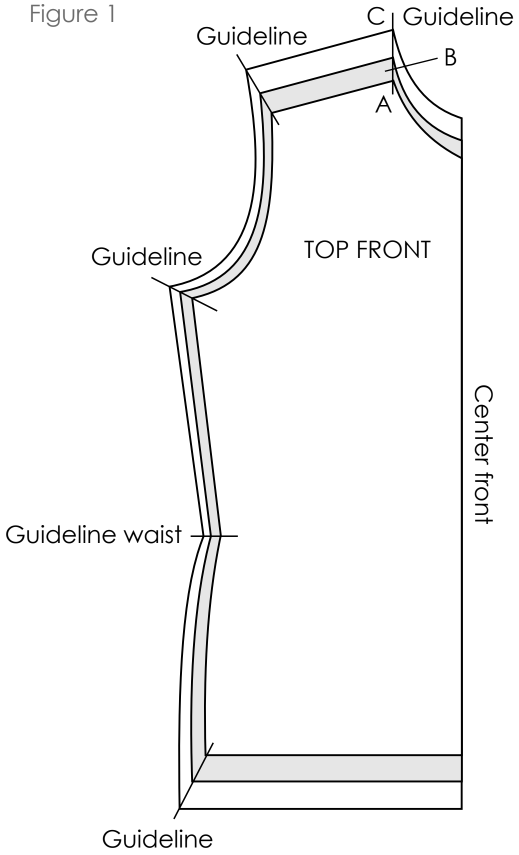
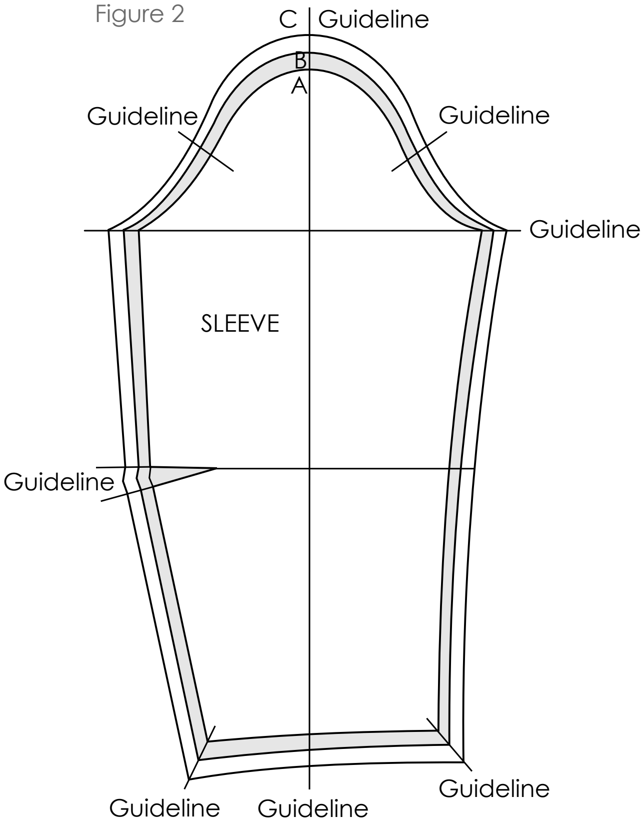


Figure 2



The Stretch Factor

Knits with varying stretch and recovery factors (firm knits and stretch knits) require different methods for reducing the pattern. Three methods are discussed.

Modifying the Pattern

To determine how much a pattern's length and width should be reduced, follow the examples and measurements given for knits with a stretch factor from 18 to 25 percent. *For knits stretching beyond 25 percent but less than 50 percent, add 1/8 inch to all measurements.* The measurements are general and may require additional adjustments at the time of the fitting. Knits shrink when washed. Walk all seams and mark notches. The basic front bodice, skirt, sleeve, and pant are illustrated and should be used as guides for all similar pattern modifications. (Broken lines indicate original patterns.)

Figures 1, 2, 3, Bodice, Skirt, Pants

- *Neckline:* Raise 1/4 inch. Blend. The back neck is not adjusted unless the neckline is deeply cut.
- *Side seams:* Remove 1/4 inch (parallel with original line of the pattern). Repeat for the back. Remove 1/4 inch from the inseam of the pant.
- *Armhole:* Raise 1/2 inch. Blend. Repeat for the back.
- *Dart points:* Raise 1/4 inch where shown.
- *Hemline and waistline:* Remove 1/4 inch (parallel with the original hem or waist of the pattern).
- *Crotch:* Raise 1/4 to 1/2 inch (amount depends on style of the pant). *Example:* 1/2 inch for trouser, 1/4 inch for slack or jean. Repeat for the back.

Figure 1

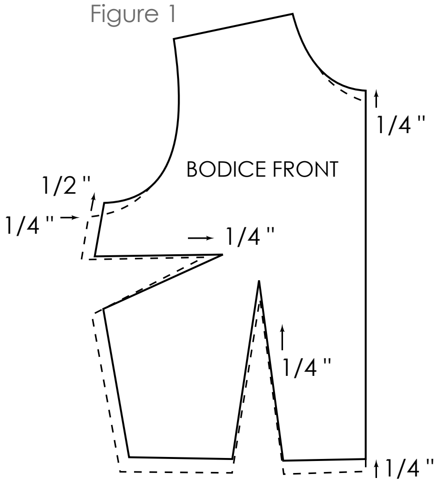


Figure 2

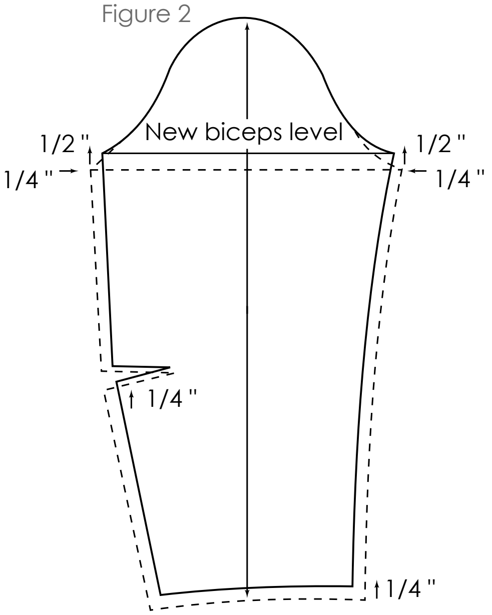


Figure 3

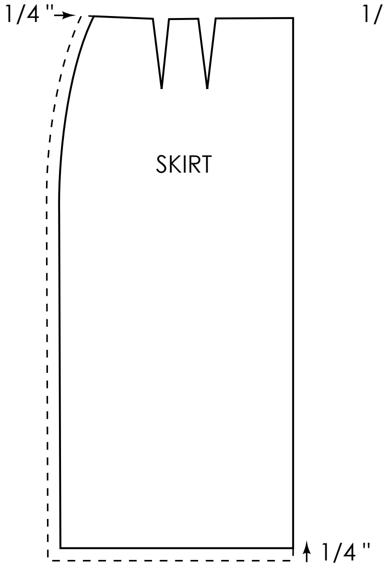


Figure 4

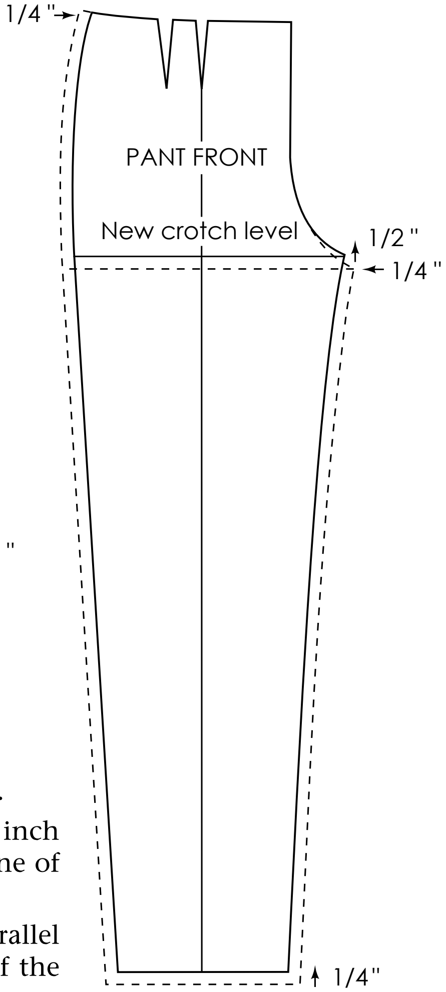


Figure 2 Sleeve

- *Biceps:* Raise 1/2 inch. Blend.
- *Underarm seam:* Remove 1/4 inch (parallel with the original line of the pattern).
- *Hem:* Remove 1/4 inch (parallel with the original hemline of the pattern).
- *Elbow dart:* Reposition 1/4 inch up.
- Walk sleeve to armhole.

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

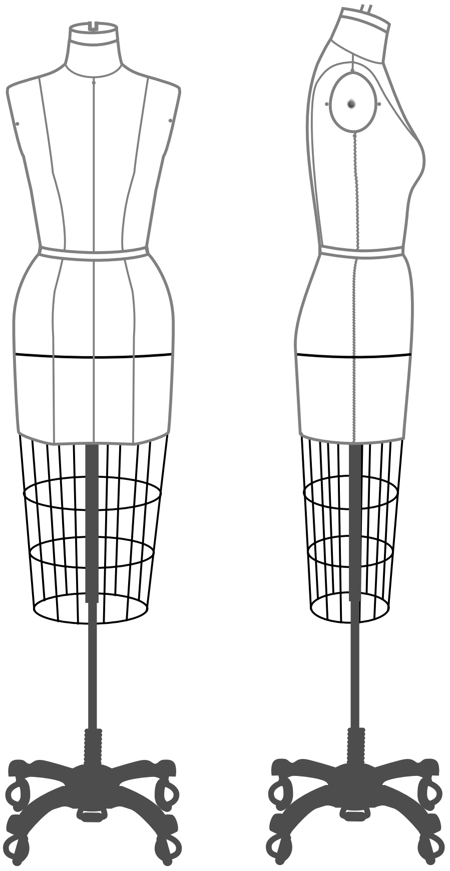
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____
2. Waist: _____
3. Abdomen: _____
4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

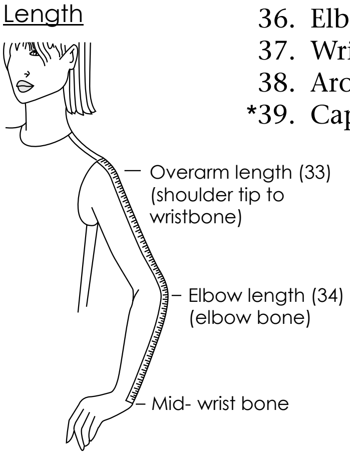
22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

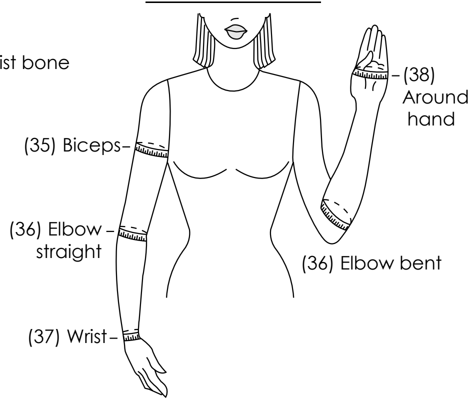
Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____


Length
Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone


Circumference
(38) Around hand
(35) Biceps
(36) Elbow straight
(36) Elbow bent
(37) Wrist

*Measuring the Arm

Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

This page intentionally left blank

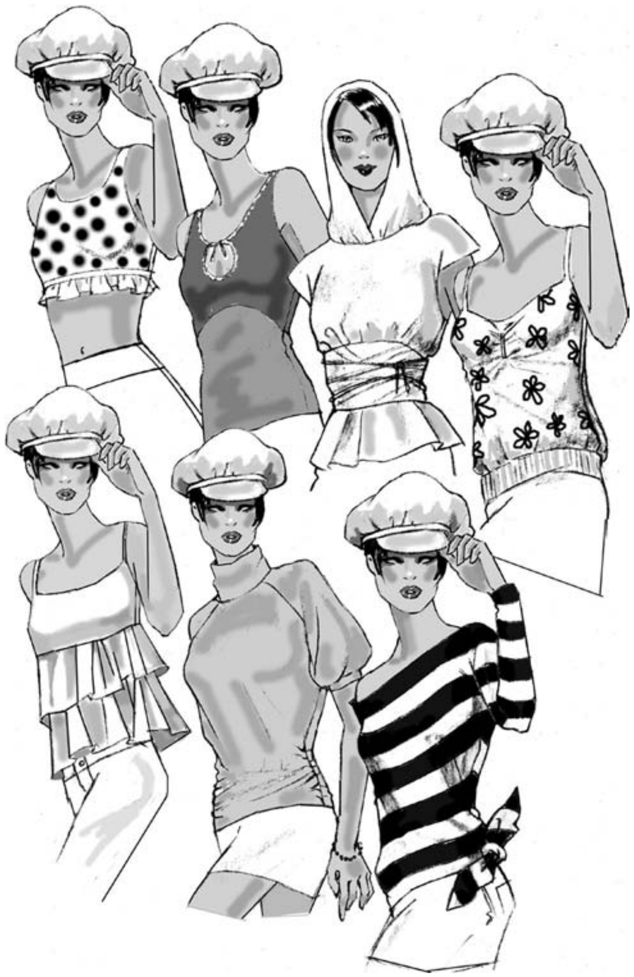
Knit Top Foundations

From Chapter 28 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

Knit Top Foundations

- TYPES OF KNIT FOUNDATIONS
- DARTLESS STRETCHY KNIT—DRAFT 1
- DARTLESS FIRM KNIT—DRAFT 2
- OVERSIZED KNIT TOP—DRAFT 3
  - Cotton Knit Top Draft
  - Ribbing
- CROP TOP WITH A MUSCLE SLEEVE
- KNIT TOP

Knit tops are based on the seamless torso foundation. The basic knit foundations are seamless. *Add 3/8-inch seams when stitching on the overlock/serge machines and 1/2-inch seams for single-stitch machines*. The patterns are drafted together and separated at the completion of the draft.



TYPES OF KNIT FOUNDATIONS

Draft 1—for two-way stretch and tubular knit

Draft 2—for firm knits (double knit)

Draft 3—for cotton knit oversized T-shirt

Ribbing: refer to Ribbing section later in this chapter.

There are a number of books that will help with sewing instructions on knits.

DARTLESS STRETCHY KNIT—DRAFT 1

Pattern Development

Figure 1 Back

- Trace the back pattern, starting at shoulder tip and ending at the armhole. Label X at neck.
- Shift the pattern upward 1/2 inch and trace 4 to 5 inches of the armhole.
- Draw the side seam indenting 1" as shown.

Figure 2

X–Y = Front shoulder measurement. (Follow the angle of the shoulderline and mark.)

- Draw the adjusted armhole using a French curve from Y, blending with the original armhole. The dart is eliminated.

Figure 1

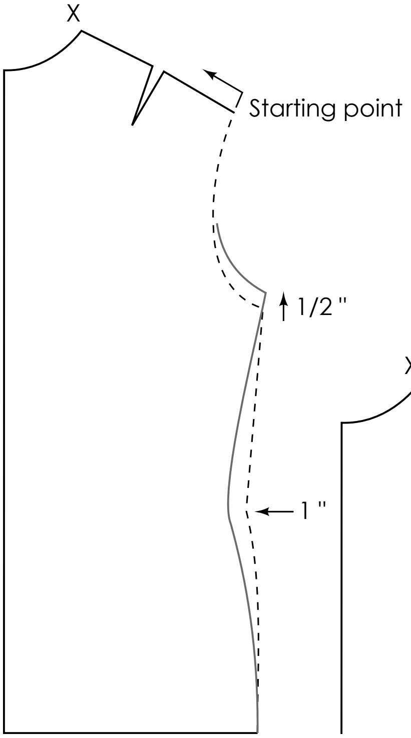
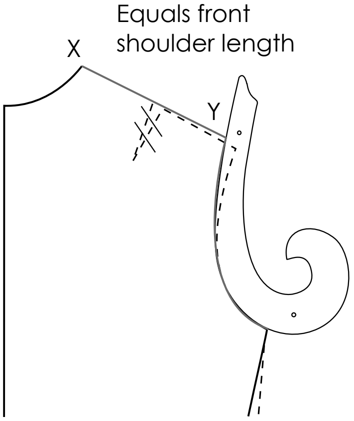


Figure 2



Figures 3a, b Front Neck

- Place front pattern on top of the back copy, aligning hip and center lines.
- Draw the front neckline only. Label Z (Figure 3a).
- If X and Z do not align, draw a line through X and Z. Mark the center and blend with the back neck and front neck. Draw line from the mark to the shoulder tip (broken lines = original pattern) (Figure 3b).

Figure 3a

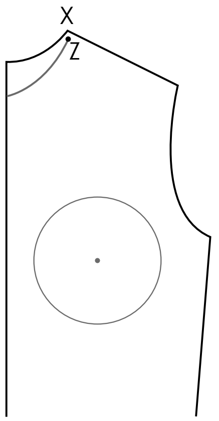


Figure 3b

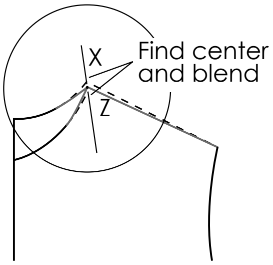
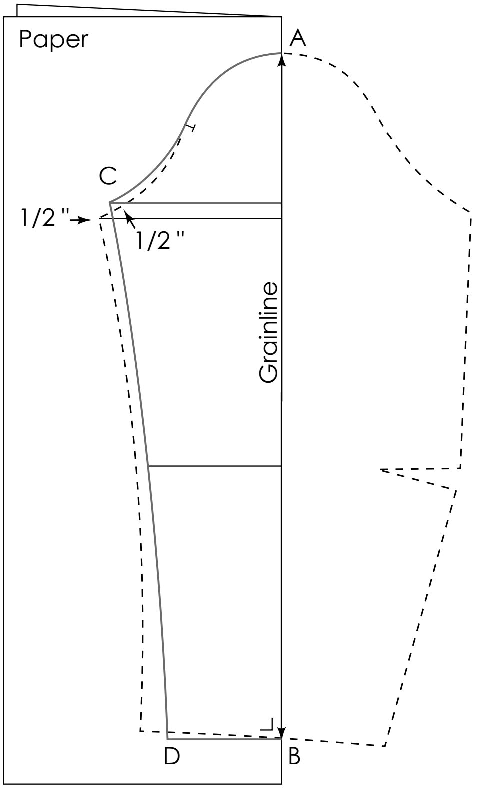

X
Z
Find center and blend

Figure 6


Paper
A
C
1/2 "
1/2 "
Grainline
D
B

Separating the Front and Back Patterns

Figure 4

- Place paper under the draft; secure and cut the back pattern. Label *Knit back*.
- Measure the armhole and record.

Figure 5

- Trim front neck from original pattern. Label *Knit front*.
- Trim 1/8 inch from curve of the armhole and blend.
- Using one-fourth of the waist and hip measurements, draw a reference side seam. Use the line for fitted garments cut in Lycra-blended fabrics.

Figure 4

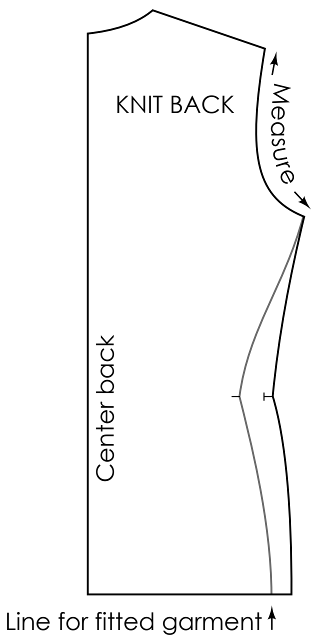
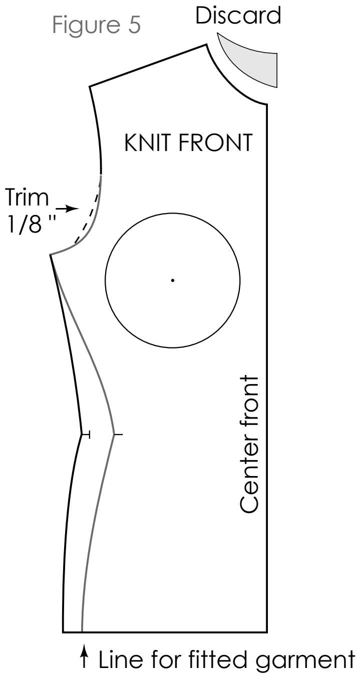

KNIT BACK
Measure
Center back
Line for fitted garment

Figure 5


Discard
KNIT FRONT
Trim 1/8 "
Center front
Line for fitted garment

Note: When using rib knit, draw straight side seams of front and back patterns to avoid runs in the knit.

Figure 6 Knit Sleeve

- Fold paper. Place the basic sleeve front on the paper with center grain on foldline and trace.
- Mark biceps and elbow. Remove. Label the grainline A–B. (Broken line indicates original sleeve.)
- Measure in 1/2 inch on biceps line. Mark. Square up 1/2 inch from mark and label C. Square a new biceps line from the fold to point C.
- Blend a new armhole curve to the sleeve cap.
- Square a line from B equal to one-half of the wrist (plus 1/4 inch) measurement, label D.
- Draw a slightly inward curved line from D to C.

Figures 7, 8 Sleeve Adjustment

- Sleeve cap should measure 1/4 inch more than armhole (1/2 inch total). Measure the sleeve cap and compare with armhole measurement.
- If cap measurement is less than the armhole, extend biceps and blend with cap. Figure 7.
- If cap measurement is more than needed, measure in from the biceps and blend the new cap. Figure 8.
- Draw a line to the elbow or wrist level.
- Mark the center cap notch.

Figure 7

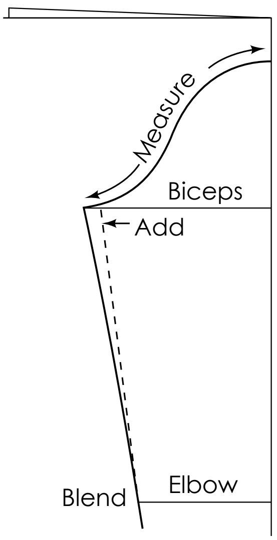
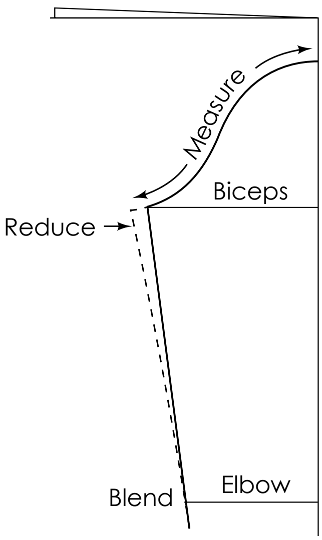

Measure
Biceps
Add
Blend
Elbow

Figure 8


Measure
Biceps
Reduce
Blend
Elbow

DARTLESS FIRM KNIT—DRAFT 2

Figures 1, 2

- Trace torso foundation pattern, transferring shoulder and side dart to the armhole. The armholes have been enlarged. The front is greater than the back. Measure to find the difference. Record.

  Example: The front armhole is 3/4 inch greater.
- Add 1/4 inch to the back shoulder.
- Subtract 1/4 inch from the front shoulder.
- Add 1/2 inch to the back side seam and subtract 1/2 inch from the front seam. Draw lines to waist, as illustrated.

Sleeve

The sleeve cap of the basic sleeve should measure 1/2 inch more than front and back armholes. If it does not, follow the instruction given in Figures 7 and 8.

Figure 9

- Cut the sleeve from paper. Unfold.
- Complete the sleeve. Label *Knit sleeve.* The sleeve is shaped equally on both sides.
- Add seams to all patterns (1/2 inch, or 3/8 inch for overlock stitch). Notch at center cap.

Figure 9

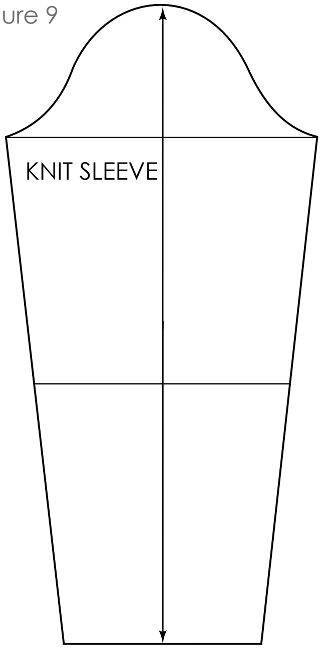

KNIT SLEEVE

Figure 1

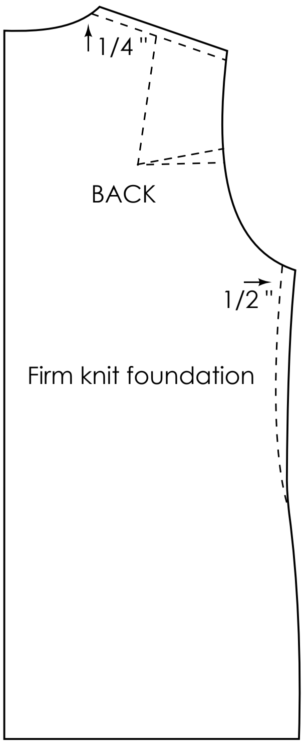
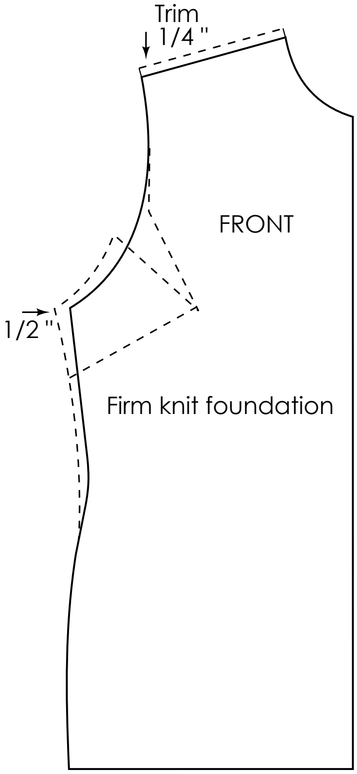

1/4"
BACK
1/2"
Firm knit foundation

Figure 2


Trim
1/4"
FRONT
1/2"
Firm knit foundation

OVERSIZED KNIT TOP—DRAFT 3

The front and back knit patterns are drafted together and separated when the draft has been completed. Create design variations from this foundation.

Cotton Knit Top Draft

The cotton knit top is based on the stretchy dartless knit top. If not available, see the first three pages of this chapter.

Figure 1

- Square a line on paper.
- Place the front dartless pattern on the square.
- Trace the neckline and end at mid-shoulder.
- Shift the pattern 1" (more or less)
- Trace the remaining pattern and remove.
- Draw a line from the shoulder tip to neck.
- Lower armhole 1 1/2", or as preferred.
- Draw the armhole using the Vary curve.
- Measure the armhole. Record in the space provided in the right column.
- Place the back dartless pattern on the square and trace the back neckline for the back knit pattern.

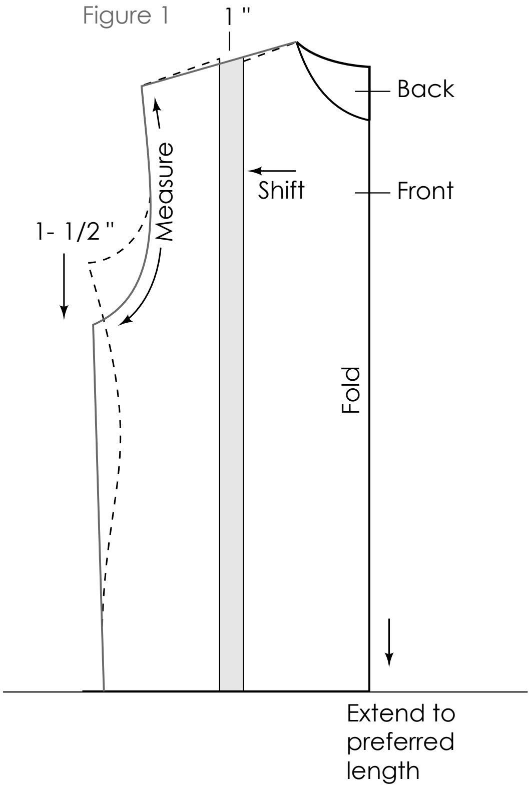


Figure 1

Sleeve Draft

Measurements Needed

- Sleeve length ____________.
- Half of armhole measurement ____________.
- Around hand measurement plus 1" ___________.

Figure 2

A–B = draw a line in middle of the paper equal to the knit sleeve length, less 1". Square out from A and B.

A–C = 3". Square out from C.

A–D = one-half of A–B. Square out from D. Fold on the A–B line.

A–E = armhole measurement. Draw the line from A touching on the biceps line. Label E. Divide into fourths and follow the illustration.

B–F = one-half of around hand measurement.

- Draw a line from F ending 1/2 inch in from E. Draw a curved line from E, blending to elbow.
- Complete the pattern, cut, and stitch to the knit top. The sleeve can be modified for other designs.

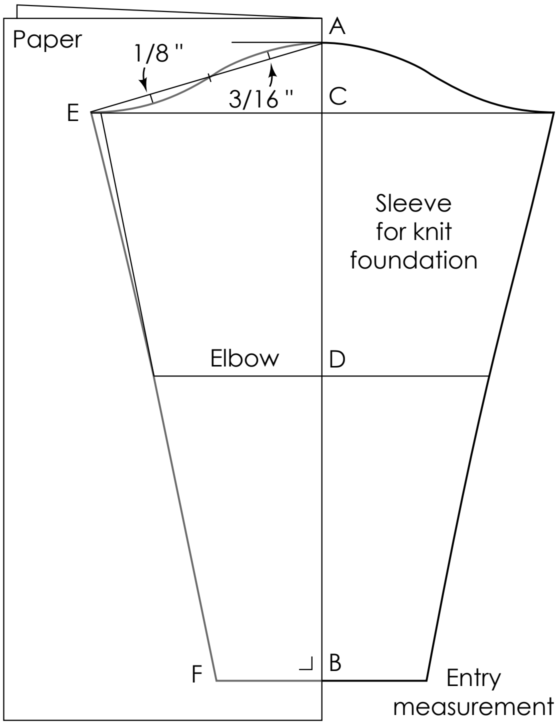


Figure 2

Completing the Patterns

Figure 3

- Place paper underneath the pattern and trace the back copy.
- Trim the back neck from the front pattern.

Ribbing

Ribbing is a perfect cover for the raw edges of stretch fabrics (neckline, cuffs, and banding at hemlines). Ribbings can be purchased to the length and width or made from the self-fabric of the knit. Overlock/serge the seams when sewing knits.

Figure 1a

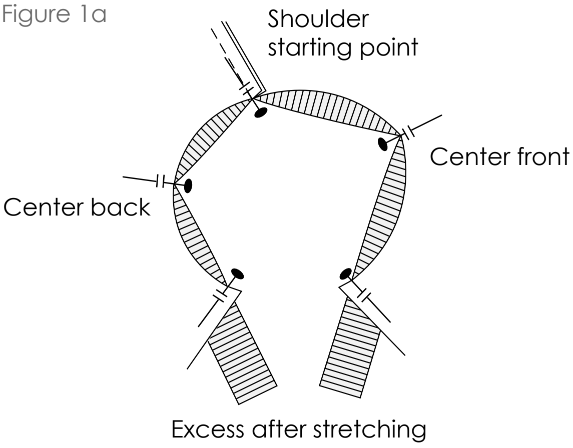

Shoulder starting point
Center front
Center back
Excess after stretching

Figure 1b

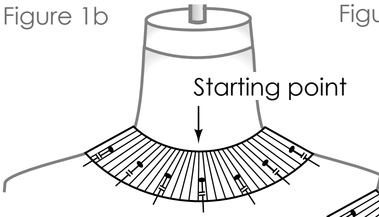

Starting point

Figure 1c

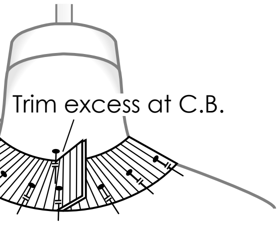

Trim excess at C.B.

Figure 2a

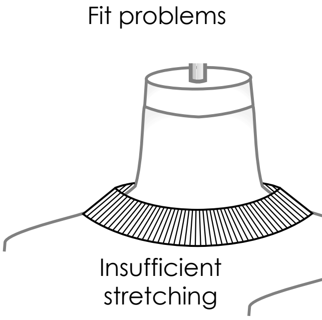

Fit problems
Insufficient stretching

Figure 2b

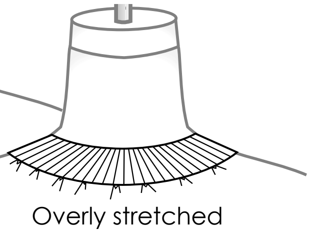
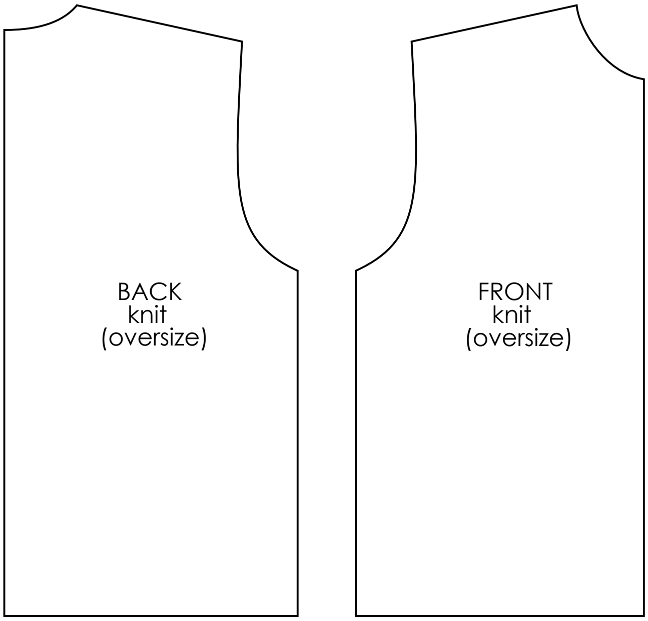

Overly stretched

Figure 3


BACK
knit
(oversize)
FRONT
knit
(oversize)

Self-Made Ribbing

The width of the knit determines the amount to be cut from around the neckline:

Width—double the measurement, plus 3/4 inch for 3/8-inch seam.

Length—equals the adjusted neckline. Fold ribbing length in half and mark.

Joining the Ribbing Seams

Figures 1a, b, c

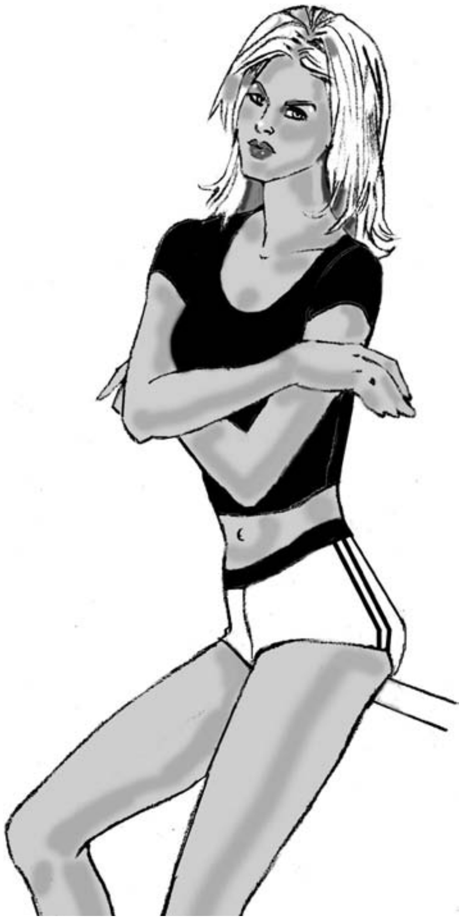
The joining seam of the ribbing can be at the shoulder line (Figure 1a) or center back (Figure 1c). Pin ribbing to the fabric lying flat (Figure 1a) or to the garment on the form (Figures 1b and 1c).

Test Fit—Problems and Solutions

Figures 2a, b

Do not trim the ribbing excess until the perfect fit is determined. The garment must be able to slide over the head easily. If too loose, the ribbing will not hug the neck (Figure 2a). Release and stretch more. If too tight, puckers will appear on the garment (Figure 2b). Release and relax the stretch.

CROP TOP WITH A MUSCLE SLEEVE



Design Analysis

The knit top fits close to the figure, indicating that a ribbed knit or Lycra should be the fabric of choice. The top fits under the bust and has a scooped neckline. The sleeve fits to the muscular arm, making this an ideal garment for exercising. The top can be based on the stretchy knit foundation.

Figure 1

Trace the dartless foundation and draw the top front and back neckline, as illustrated.

Figure 1

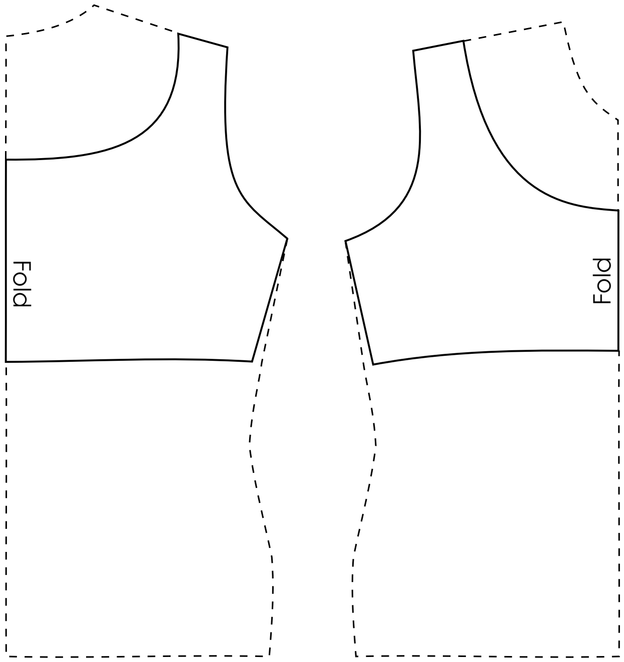
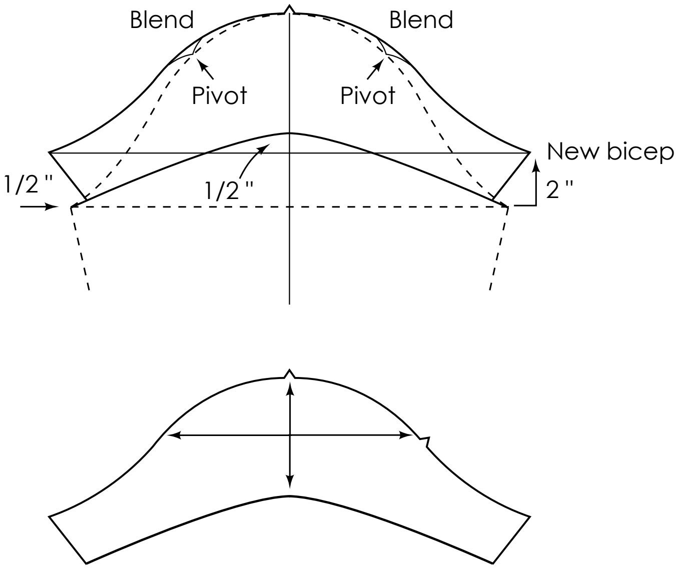


Figure 2 Sleeve

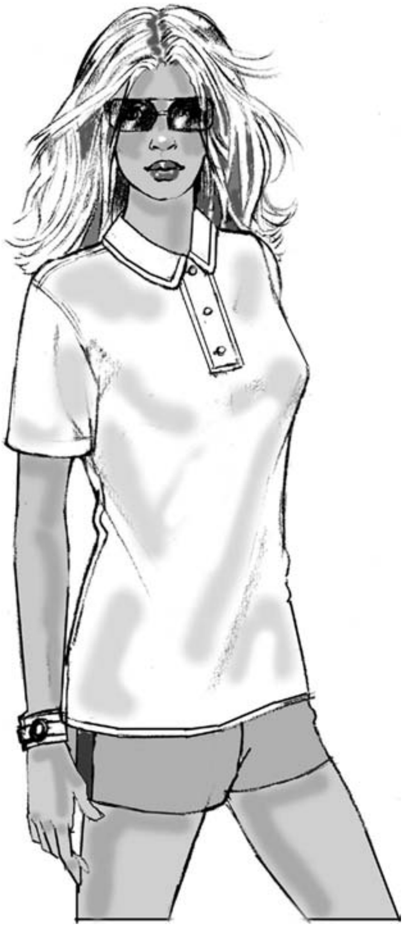
- Trace the knit sleeve to bicep (broken lines) and remove.
- Draw a parallel line 2 inches up from the biceps.
- Place the sleeve on the traced copy and pivot 3 inches down from cap to the new biceps line. Trace and indent 1/2 inch.
- Repeat for the other side of the sleeve.
- Blend the capline and curved hemline, following the illustration.

The cap should measure 1/2 inch greater than the armhole. Add to or subtract from the underarm equally.

Figure 2



KNIT TOP



Design Analysis

A popular shirt design is based on the oversized cotton knit foundation. The top has a placket.

Figure 1

- Trace the oversized dartless foundation on the fold.

Placket Inset

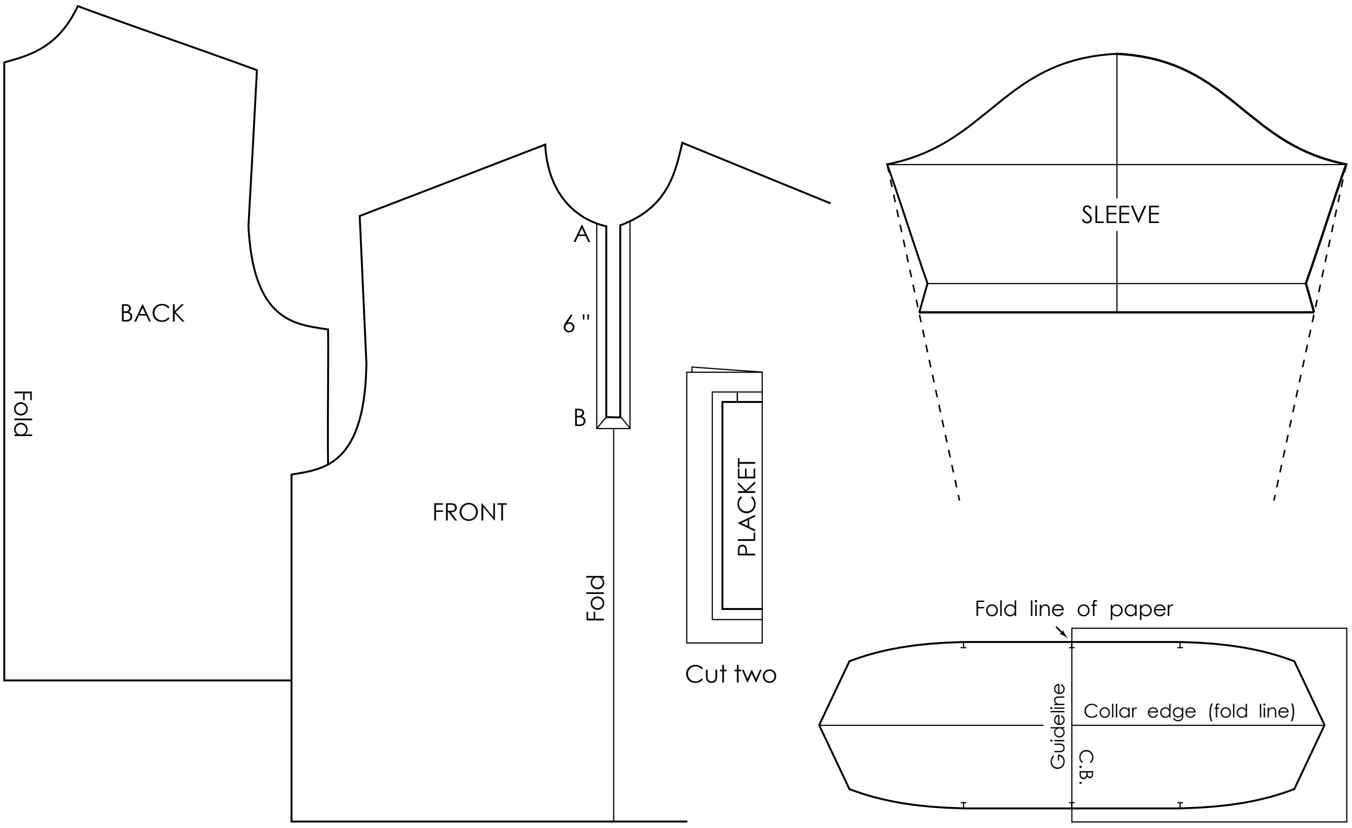
- Draw a line 3/4" in from fold to the desired length of the placket.
- Add a 1/4" seam allowance and cut out this section.
- Draw the placket on fold 1 1/2" wide and equal to the length of the opening. Add 1/4" seams and notch 3/4" in from the fold to indicate where the collar starts. The placket is stitched from fold to notch and turned to the right side before stitching placket to garment.

The collar can be cut from knit yardage. Ribbed collars may be ordered to the size needed from novelty sewing supplies or from trim resources.

Sleeve

- Trace the sleeve and shorten to desired length and add 1 inch for hemline.

Figure 1


BACK
Fold
A
6 "
B
FRONT
Fold
PLACKET
Cut two
SLEEVE
Fold line of paper
Guideline
Collar edge (fold line)
C.B.

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

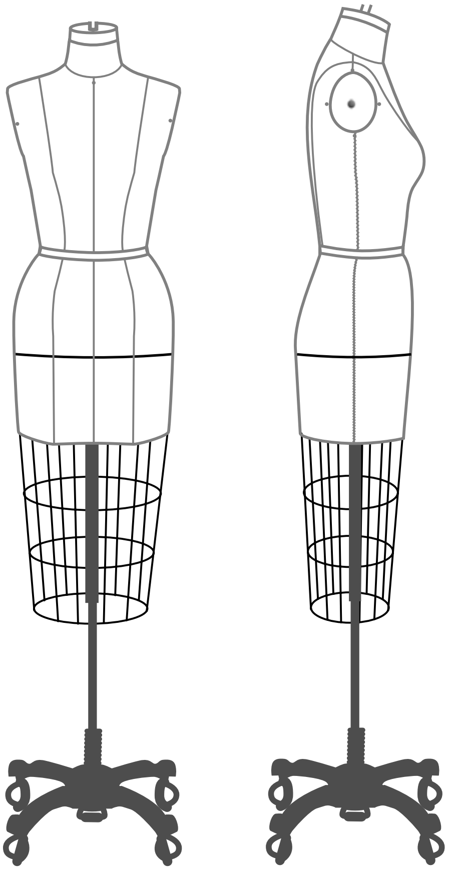
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

*Measuring the Arm

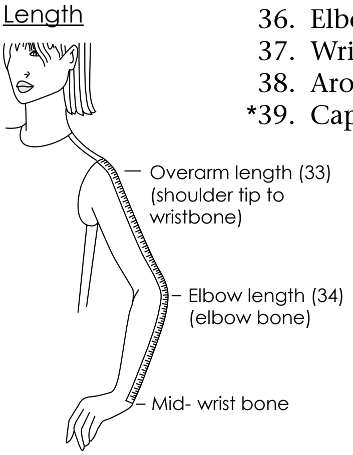
Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

Personal Figure Variations

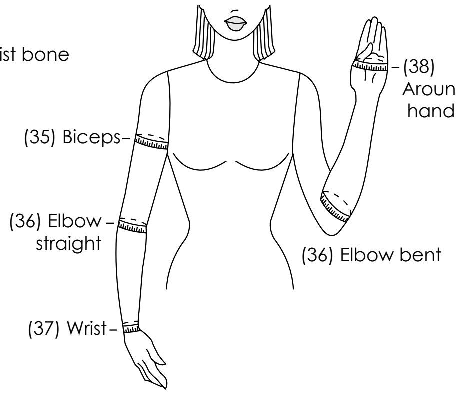
A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____


Length
Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone

Circumference



This page intentionally left blank

Activewear for Dance and Exercise

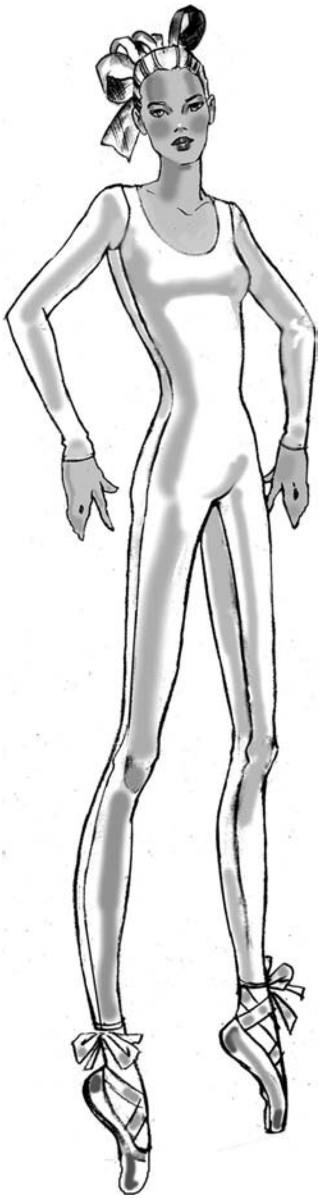
From Chapter 29 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

Activewear for Dance and Exercise

BODYSUITS AND LEOTARDS
THE BODYSUIT FOUNDATION
LYCRA SLEEVE DRAFT
    No-Side-Seam Bodysuit
    One-Piece Bodysuit
BODYSUIT DESIGN VARIATIONS
    Bodysuit with Scooped Neck and Cut-Outs
    Bodysuit with High-Neck Halter
    Separated Bodysuit
    Tights
    Stirrups
LEOTARD FOUNDATION
    All-in-One Leotard
    Color-Block Design for Leotard
    Leotard with Raglan Sleeve
    Basic Tank Leotard

BODYSUITS AND LEOTARDS

Actionwear is a classification of garments designed to allow complete freedom of movement for physical activities and sports. The bodysuit and leotard are ideal for such purposes. To be functional, the bodysuit and leotard should be cut in two-way or four-way stretch knits having from 30 to 100 percent stretch and recovery in both directions. Suitable knit fabrics are those combined with spandex (synthetic) or latex (rubber). Popular choices are nylon spandex, cotton spandex, nylon latex, and cotton latex.



Additional Information

The draft includes 3/8 inch seams; however, if any part of the center front or back is cut on the fold for design variations, trim 3/8 inch from that part of the pattern. The draft is a complete body, but necklines are usually cut away and that part of the pattern needs 3/8-inch seams.

The front and back are drafted together and separated at the completion of the draft.

THE BODYSUIT FOUNDATION

The draft can be based on the following *back* patterns:

- Knit dartless foundation
- Torso foundation
- Basic back pattern (illustrated)

The draft includes 3/8-inch seams and a 1-inch hem allowance for sleeve and pant.

Measurements Needed

(19) Front waist arc _______________.
(23) Front hip arc _______________.
(24) Crotch depth _______________.
(27) Waist to ankle _______________.
(30) Knee _______________.
(32) Ankle _______________.

Figures 1a, b

- Draw a vertical line on paper.
- Place the back pattern 1/4 inch beyond the line.
- Trace the neckline (A) to the armhole (B).

If there is a shoulder dart, modify as shown (Figure 1a).

- Mark the waist (C). Remove the pattern (Figure 1b).

Figure 2

- Square a line 1 1/2 inches up from waistline and remark point C.

Figure 1a

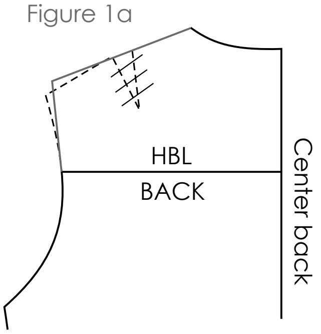


Figure 1b

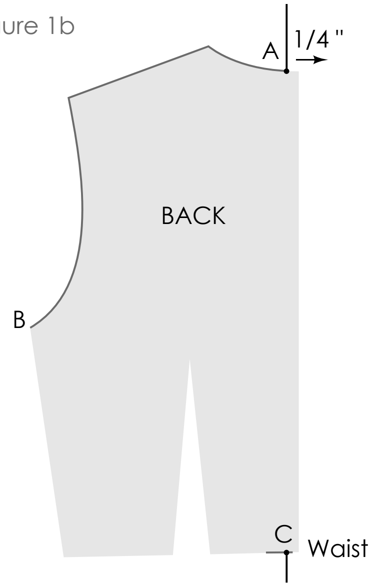
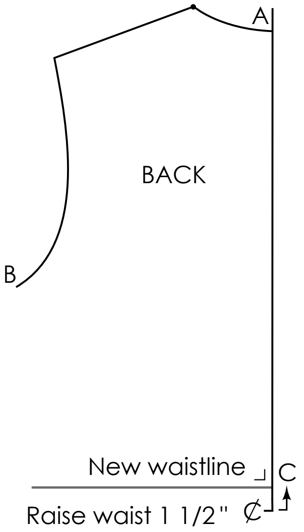


Figure 2



Waist, Side Seam, and Neckline

Figure 3

*C–D = waist arc (19), less 1/2 inch. Mark.

Draw a line from D, 1 inch past B and blend to the armhole. Draw an inward curved side-seam line.

Draw the front neckline 1 1/2 inches from A.

Measure the armhole. Record ___________.

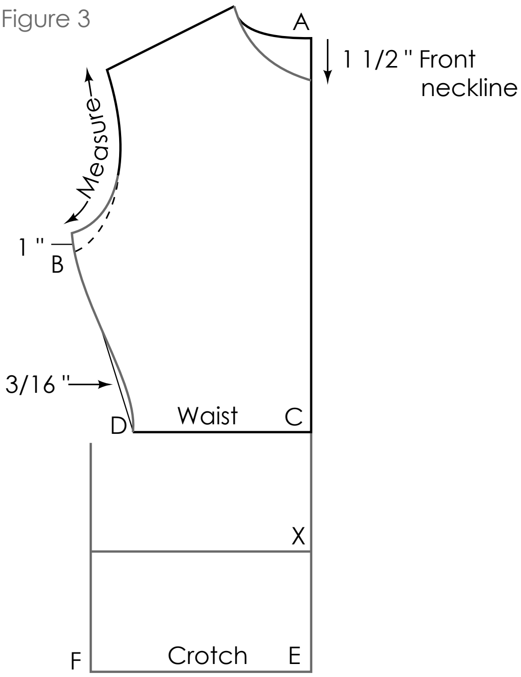
Crotch Depth and Hip

*C–E = crotch depth (24), less 1 1/4 inches.

*E–F = hip arc (23), less 1/2 inch squared from E, and square up.

C–X = one-half of C–E. Square out from X.

Figure 3



Crotch Extension and LegLine

Figure 4

E–G = one-third of E–F. Draw curved line to H and X.

G–I = one-half of G–F. Square a line from I through the pattern's length. Label waist J.

J–K = waist to ankle (27), less 3 inches.

I–L = one-half of I–K (knee).

Divide knee (30) and ankle (32) in half and add 1/4 inch ease to each. Square out using half the measurement on each side of L and K.

*Subtract 1 1/2 inch at waist and hip arc if milliskin knit (four-way stretch) is used.

Shaping the Legline

Draw lines from ankle, touching and passing the knee. Draw straight lines from knee to G and 1/2 inch in from F.

Follow the illustration to shape the legline from knee to crotch curving to X. Shape from crotch to hip, to waist.

Figure 4

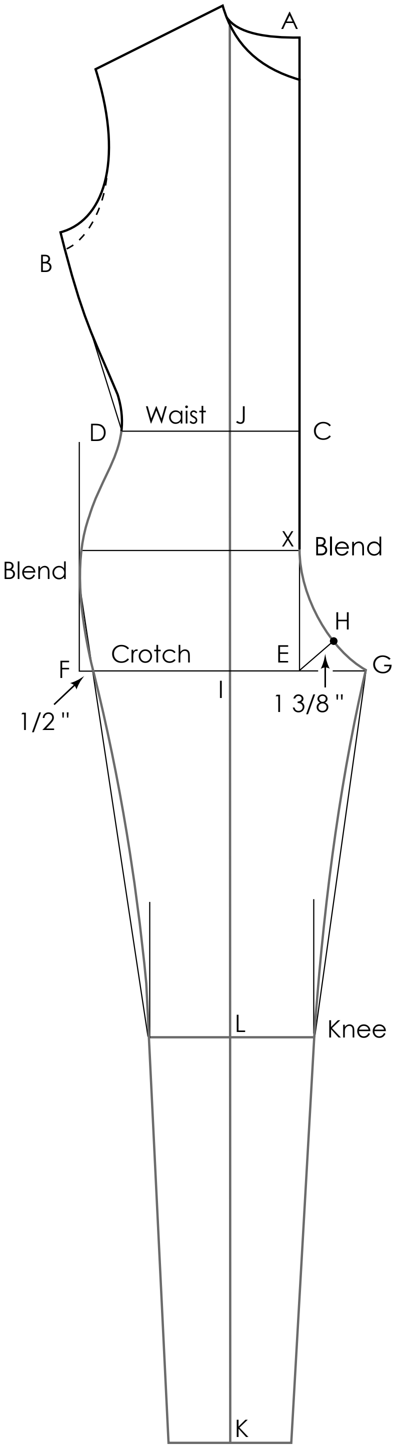


Figure 5, Separate Foundation Pattern

- Place paper under the draft; secure. Cut the pattern from paper and separate. Label the undercopy *Back Bodysuit* and draw a stretch direction line.

Figure 6

- Trim to the front neckline of the draft and draw a stretch direction line on the pattern. Label *Front Bodysuit.*

For the sleeve draft, see next page.

- Trace the bodysuit foundation on fabric and mark a neckline (broken lines) for the test fit.

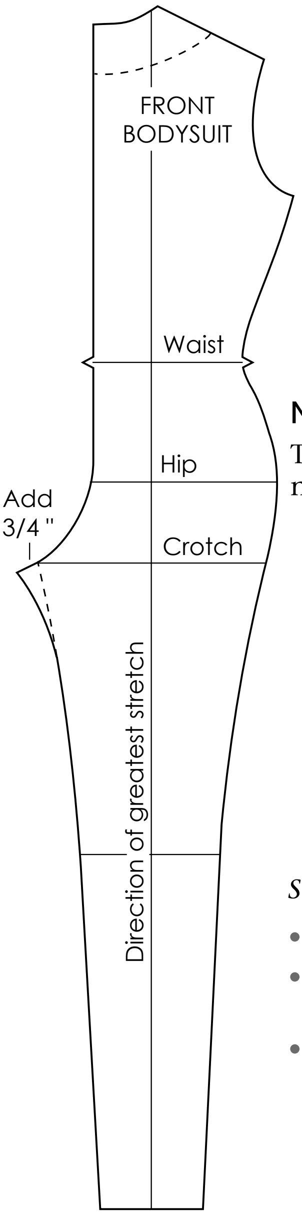
Test Fit and Guidelines

Figure 7

Mark bust point and rib to establish the circumference line. Mark at the time of fitting and transfer to the pattern after fitting.

- Check looseness or tightness in length from the crotch and shoulders, and below the crotch to the ankle.
- Draw a guideline through the length of the pattern (X) to increase or decrease width.
- Draw guidelines at waist and knee of the pattern (Y) to increase or decrease length. The arrows indicate which direction to move pattern sections to affect the fit of the bodysuit.

Figure 5


FRONT
BODYSUIT
Waist
Hip
Add
3/4"
Crotch
Direction of greatest stretch

Notching Guide

There are two types of notches used for knit fabrics:

1. Notch to a depth of 1/8 inch.
2. Cut pyramid shapes out from the seam line edge—1/4 inch wide, and 1/8 inch high (Δ).

Stitching Guide

- Overlock seams together.
- Stitch the sleeve to the garment.
- Elastic not required unless a design has a cut-out nickline or cut-outs through the body of the garment.

Figure 6

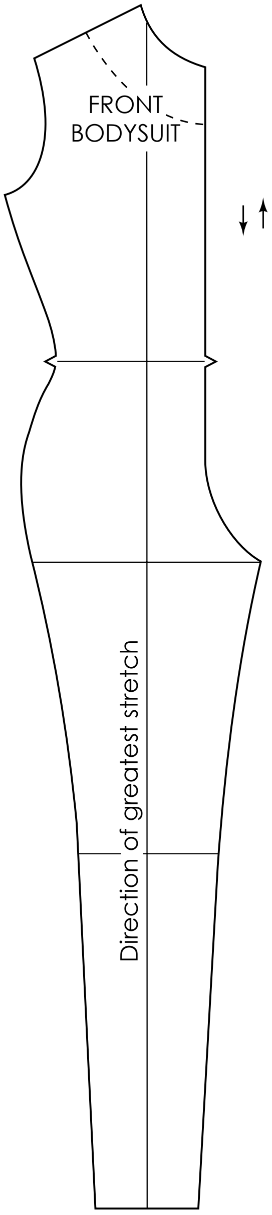
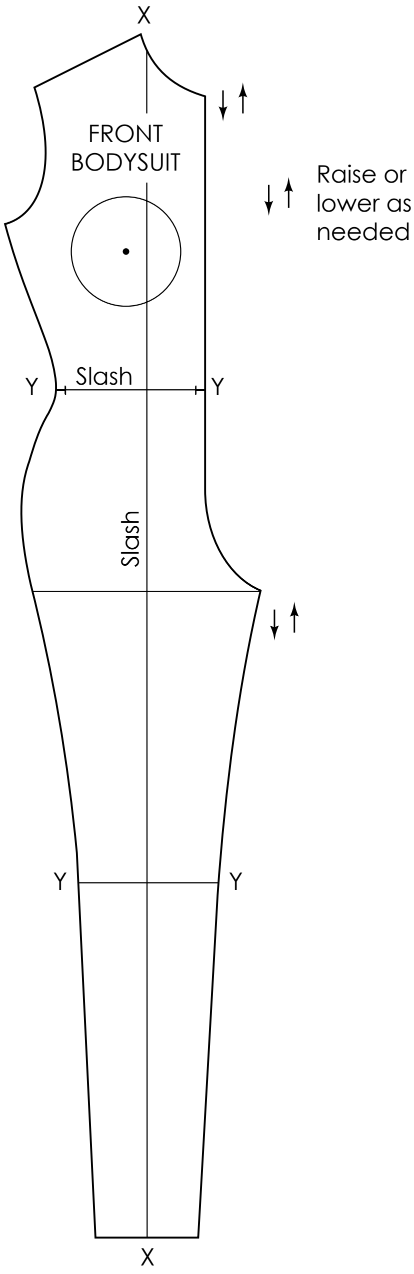

FRONT
BODYSUIT
Direction of greatest stretch

Figure 7


X
FRONT
BODYSUIT
Raise or
lower as
needed
Y
Slash
Y
Slash
Y
Y
X

LYCRA SLEEVE DRAFT

The sleeve must be test fitted to the garment and corrected, if necessary. The maximum stretch goes through the length of the sleeve. Seam allowance (3/8 inch) is included.

Measurements Needed

- Sleeve length (includes 1/2-inch hem) __________.
- Cap height __________.
- Armhole measurement __________.
- Wrist, plus 3/4 inch __________.

Figure 1

A–B = draw the sleeve length on paper. Fold.

A–C = three-fourths of cap height (biceps).

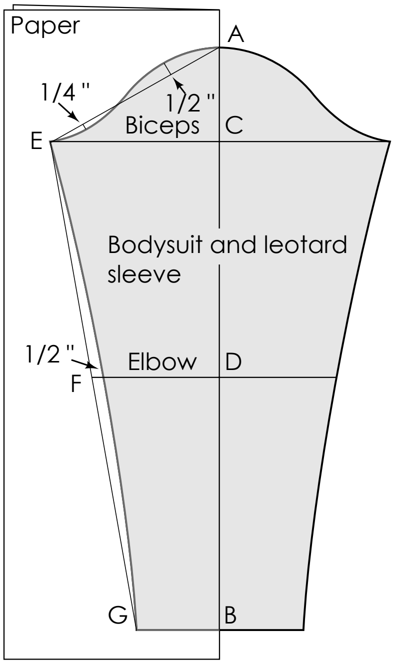
B–D = one-half of B–C (elbow). Square lines out from C, D, and B.

A–E = armhole measurement. Draw line (A to E) and divide into thirds. Draw the sleeve cap, as illustrated.

B–G = one-half of the wrist measurement plus 1/2 inch. Square from B.

- Draw a line from G to E. Draw an inward curved line for the underseam.
- Cut sleeve from the paper and unfold. Test fit.

Figure 1



No-Side-Seam Bodysuit

Figure 1

Lay front and back bodysuits side by side with side seams and hips overlapped to remove side-seam allowance (3/8 inch from each side). Secure and trace. Draw guidelines through the waist and knee levels. Draw a guideline between the waist and ankle space. Label line *Direction of greater stretch.*

C–D = A–B.

E–F = A–G.

Draw a new center front and center back line, blending with original lines, as illustrated.

K–L = one-half of knee measurement. Mark.

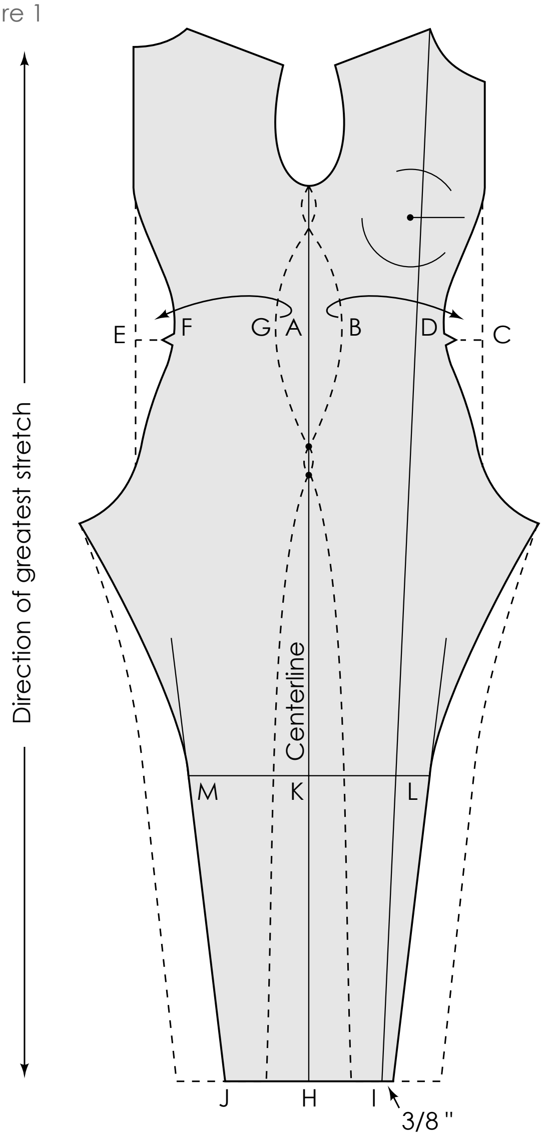
K–M = K–L.

H–I = one-half of ankle measurement plus 3/8". Mark.

H–J = H–I.

- Draw leglines. Cut the pattern from paper. Walk the legline (adjust at crotch level), and test fit.

Figure 1



One-Piece Bodysuit

The one-piece bodysuit is shaped at the center back of the pattern through the waist level and blended to the original lines. The one-piece bodysuit is used for designs with color blocking or other design stylelines that cross over the side of the figure. The bodysuit can be sleeved and may have a cut-out neckline.

The One-Piece Draft

Figure 1

- Fold paper. Place front pattern 3/8" from fold to eliminate seam allowance. Trace pattern. Place back body pattern side by side (overlapping side seams 3/4" to eliminate seam allowance). Trace.
- Square guidelines out from the waist, hip, crotch, and knee. Broken lines indicate the original patterns.

  C–D = A–B (space between the patterns at the waist). Mark.
- Draw a guideline from the shoulder/neck parallel to the center front (H).
- Draw a line down from the center front 3/8 inch past the crotch level. Label G. Mark.

  E–F = 1 inch. Mark.
- Draw a line 3/4 inch from H to F (inseam).
- Draw a curved line from G, blending with inseam.
- Label the knee I.

  H–K = ankle measurement, plus 3/8 inch.

  I–J = knee measurement, plus 3/8 inch.
- Draw a line from K just past J.

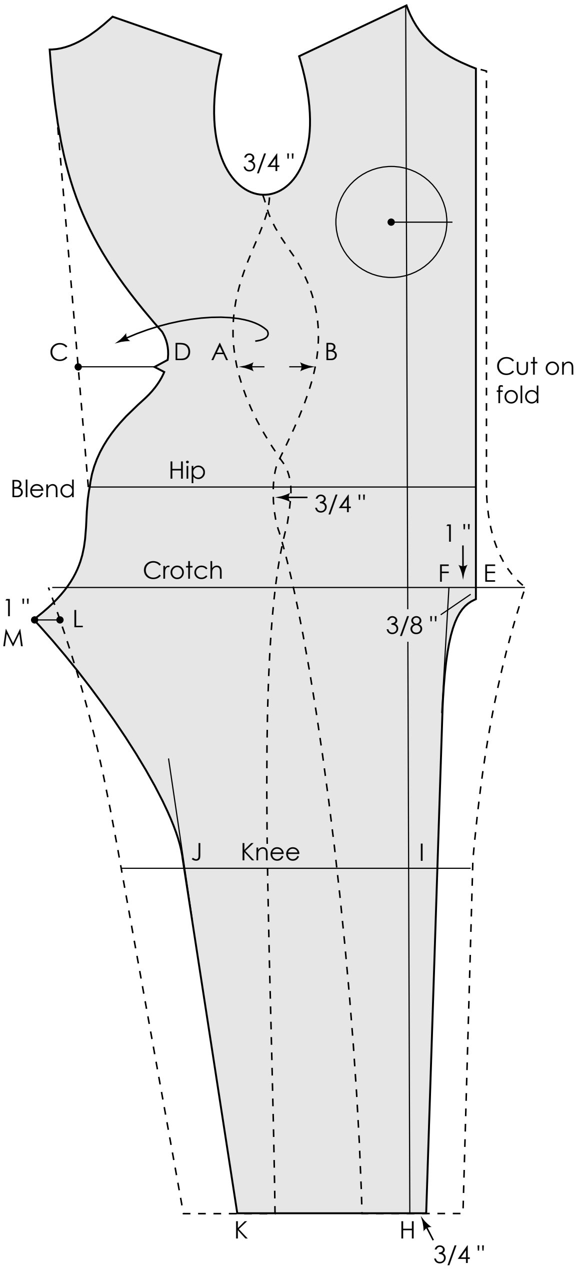
  J–L = measure from I–G, less 3/4 inch (shown as uneven broken lines).

  L–M = 1 inch.
- Draw an inward curved line up from J to M.
- Draw an inward curved line from M, passing above point L, continuing the line to hip.
- Draw an outward curve touching point D, continuing to the center back. Lines must blend well.
- Cut the pattern from paper and test fit.

Possible Adjustment for Fit Problems

- If fabric bulges at center back at buttocks, pin excess, measure, and correct the pattern.

Figure 1



BODYSUIT DESIGN VARIATIONS

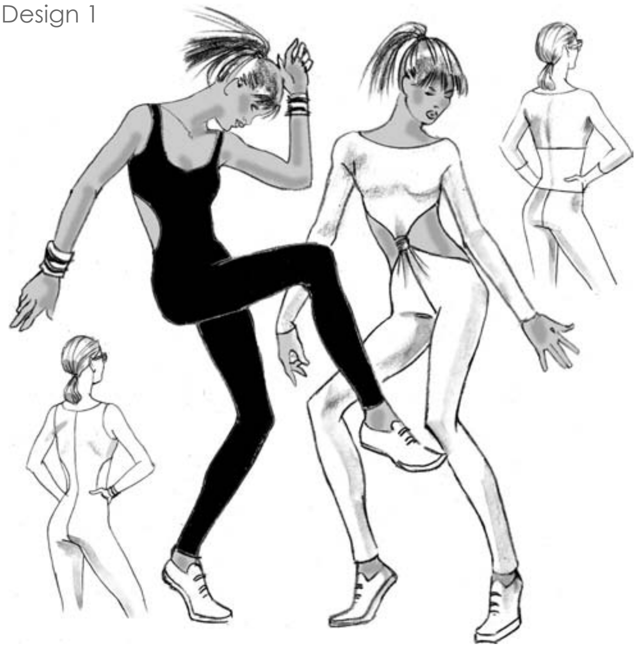
Designs for the leotard and maillot can also be adapted to the bodysuit.

Bodysuit with Scooped Neck and Cut-Outs

Design Analysis

Design 1 has a scooped neckline with cut-out side sections touching above and below the bust arc and waist. The front and back have the same stylelines. Seam allowances of 3/8 inch are included. Cut-outs for design variations require 3/8 inch seams.

Design 1



Pattern Plot and Manipulation

Figure 1

- Trace the front pattern. Mark the bust point. Draw the bust circumference.
- Draw stylelines (1 inch above bust circumference) using the measurements given.
- Cut the pattern from the paper.
- Draw the grainline in the direction of the greatest stretch.

Figure 2

- Retrace for the back pattern.
- To develop the stirrup, see section on Stirrups ahead two pages.

Figure 1

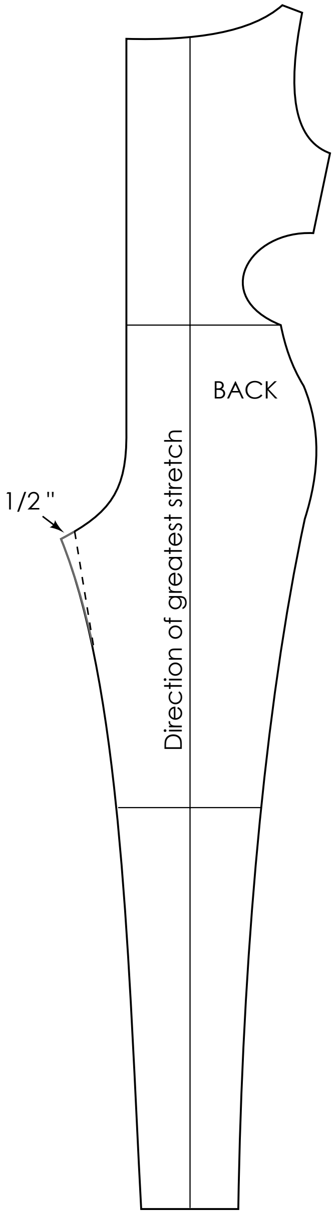
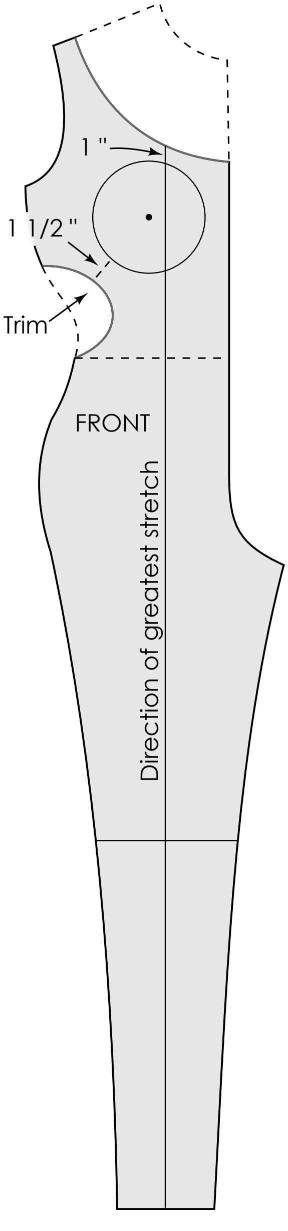


Figure 2



Bodysuit with High-Neck Halter

Design Analysis

The halter top has a high neck, which extends above the natural neckline and can be a fold-over in front and back. A torso styleline gives a two-piece effect. The back has a seam, and the front is cut on the fold with the seam allowance removed. The back entry has loops and buttons.

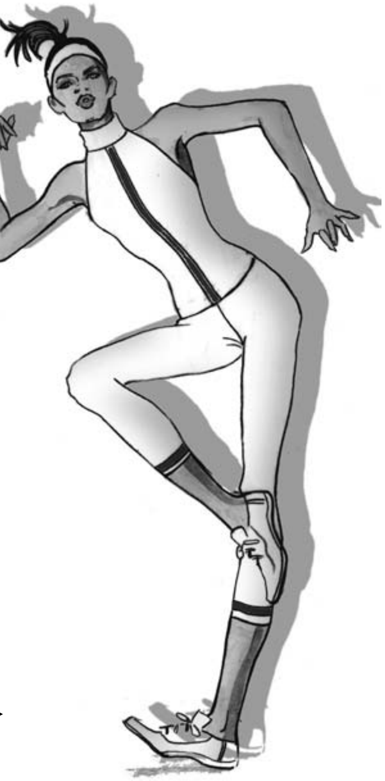
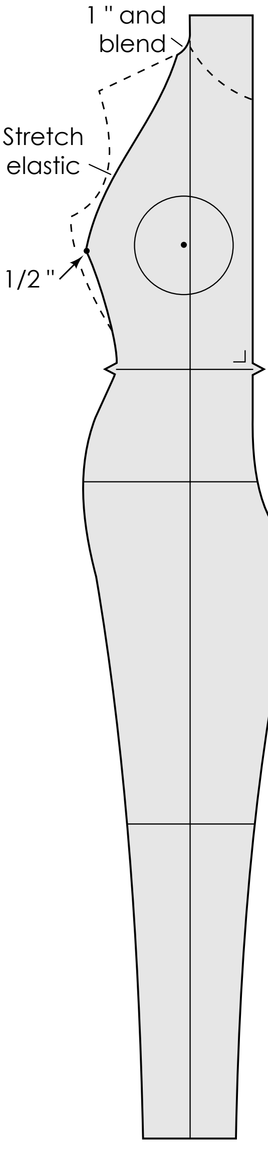


Figure 1



Pattern Plot and Manipulation

Figure 1

- Trace the front pattern. Mark the bust point and draw a line circumference around the bust to recheck placement.
- Draw a curve line up from the side waist, ending 1 1/2 inches from the armhole and in 1/2 inch.
- Draw a straight line ending 1 inch from the shoulder-neck and blend in a curved line.
- Draw the torso styleline at a length desired (example: between the waist and crotch level).
- Cut the pattern from the paper and separate at the torso level.

Figure 2 Legline

- Add 1/2 inch to the crotch point of the back pant when traced.
- Add a 3/8-inch seam at the torso line of the front and back pant.

Figures 3a, b Front and Back Torso

- Place the front and back torso on fold, with 3/8 inch past the fold to eliminate the seam allowance.
- Add a 3/8-inch seam allowance at the torso line.
- Complete the pattern for a test fit.

Figure 2

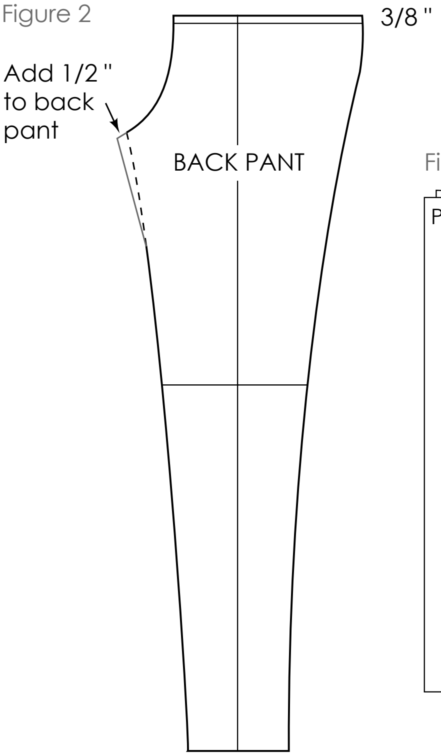


Figure 3a

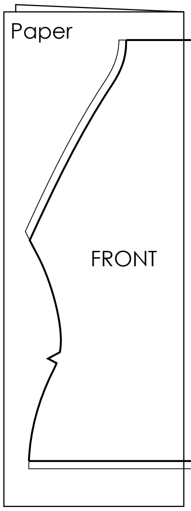
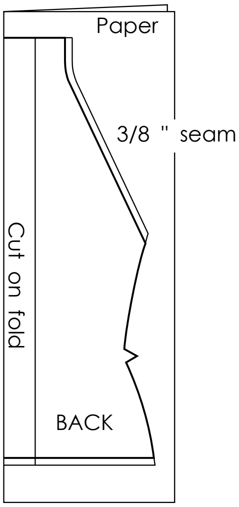


Figure 3b

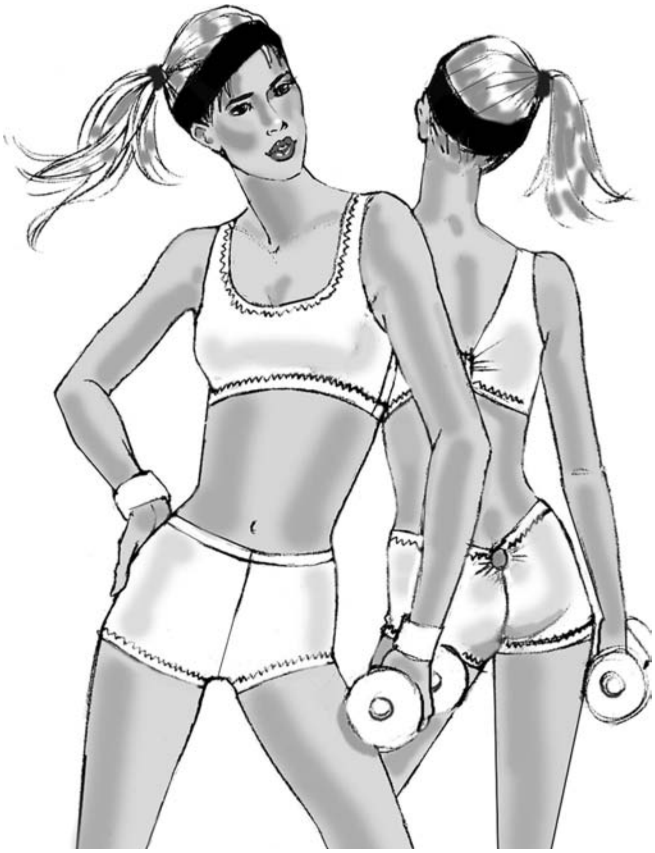


Separated Bodysuit

The bodysuit can be separated at varying places along its length. The legline can be shortened or, at full length, the legline can include stirrups. The bodysuit, when separated, can also be used for swimwear designed with little-boy leglines cut in spandex with stretch going around the body.

Design Analysis

The bodysuit modified with a separated midriff area and short legline is but one of many designs that can be created from this foundation. The center back bodice and pant are held in with a loop for gathers. To create the design without gathers, eliminate the loop control and trim the extension of the back pant.



The Bodysuit Draft

Figures 1, 2

- Trace the front and back patterns.
- Plot the stylelines, using illustrations as a guide.

Figure 1

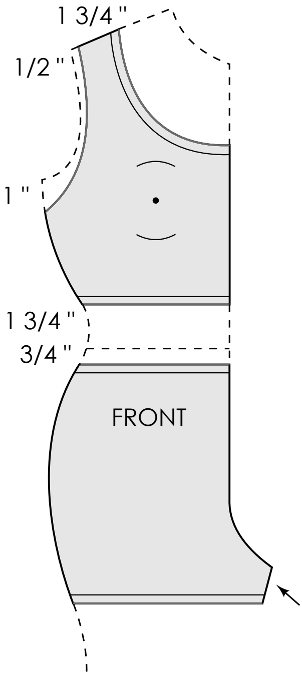
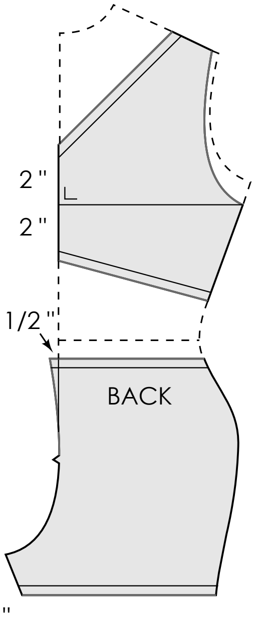


Figure 2



Figures 3, 4

The examples illustrate the use of loops for controlling gathers at the back bodysuit.

- Cut the loop 1 3/4 inches × 2 3/4 inches. Sew together and wrap around the center lines of the garment or place the loop on the back before stitching the center back bodice. The loop of the pant should be stitched across the seam of the top side of the pant, located at a depth of 3 to 4 inches, and wrapped around the top of the pant to the back side. Top-stitch the loop to secure.

Figure 3

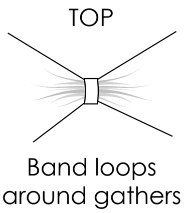
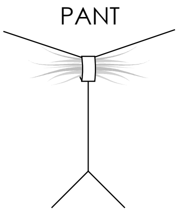


Figure 4

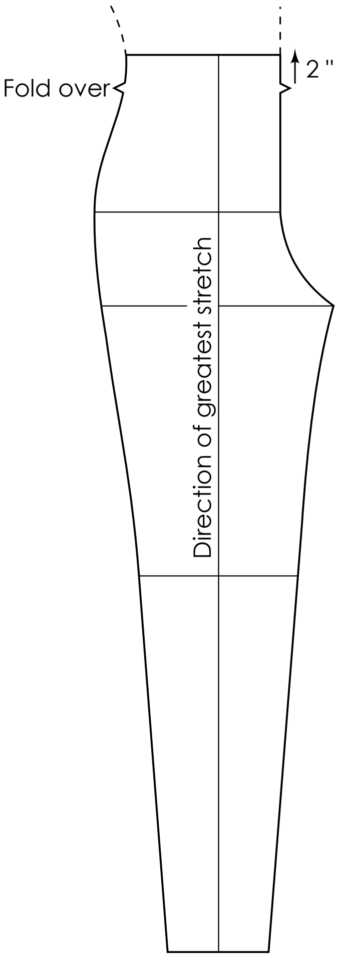


Tights

Figure 1

- For leggings, trace the bodysuit from 2 inches above the waist to ankle.
- *Elastic:* Width is 3/4 to 1 inch. Length is 1 inch less than the waist (overlap 1/2 inch to secure ends). Fold the waist to form a casing.
- Draw the grainline in direction of greater stretch.
- Patterns for front and back are identical. Hip, crotch, and knee guides are optional.
- Note that 3/8-inch seams are included.

Figure 1

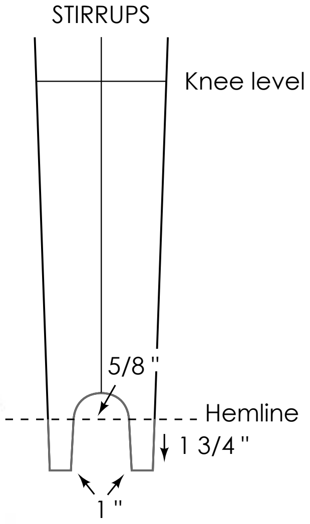


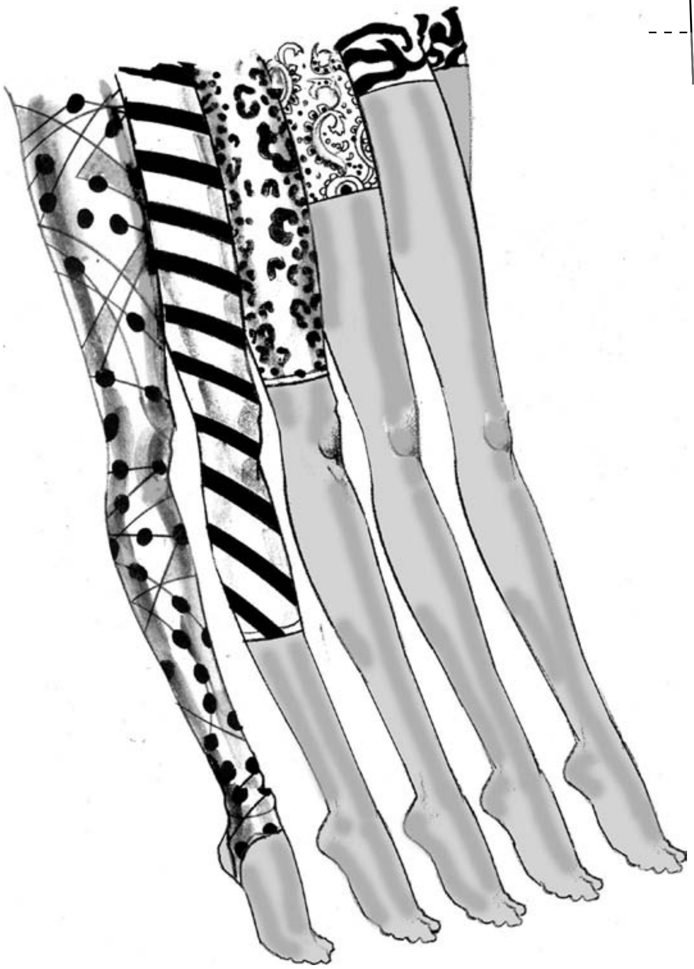
Stirrups

Figure 2

- For bodysuit designs with stirrups (rings extending around and under feet), cut out leg at ankle as shown.
- Hemlines at each side of the front and back pant are stitched together. (This section lies at the bottom of the foot's instep.)
- Note that 3/8-inch seams are included.

Figure 2



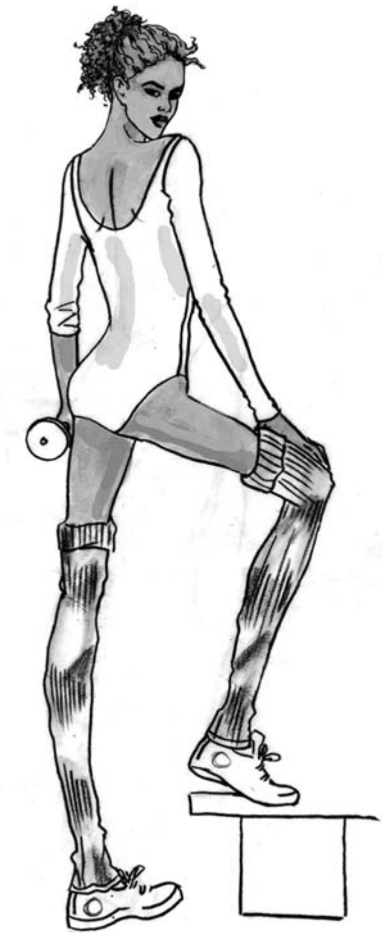


LEOTARD FOUNDATION

The front and back leotard is generally cut on the fold so the draft does not provide center lines with a 3/8-inch seam allowance. If center front and/or back require seams for design variations, add 3/8-inch seams. Cut-out necklines of leotards vary and will also require the addition of 3/8-inch seams.

The draft is based on any of the *back* patterns. The basic back pattern is illustrated.

The draft includes 3/8-inch seams (except at center lines) and 1-inch hem allowance is for sleeve and pant.



Measurements Needed

(19) Front waist arc __________

(23) Front hip arc __________

(28) Crotch length __________

Figures 1a, b

- Draw a vertical line on paper.
- Place the back pattern 3/8 inch beyond the line.
- Trace the neckline (A) to the armhole (B) (Figure 1b).

If there is a shoulder dart, modify as shown (Figure 1a).

- Mark the waist C. Remove the pattern.

Figure 2

- Square a line 1 1/2 inches up from the waistline and re-mark point C.

Figure 1a

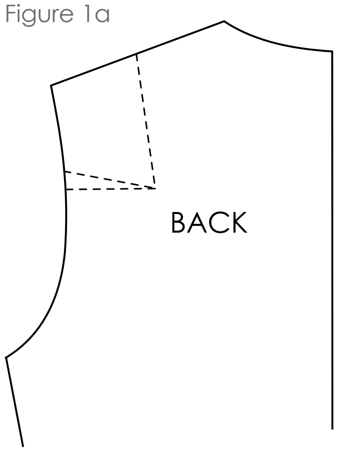


Figure 1b

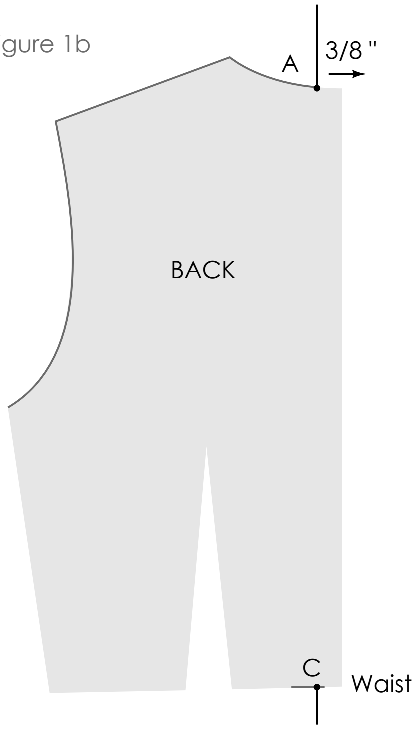
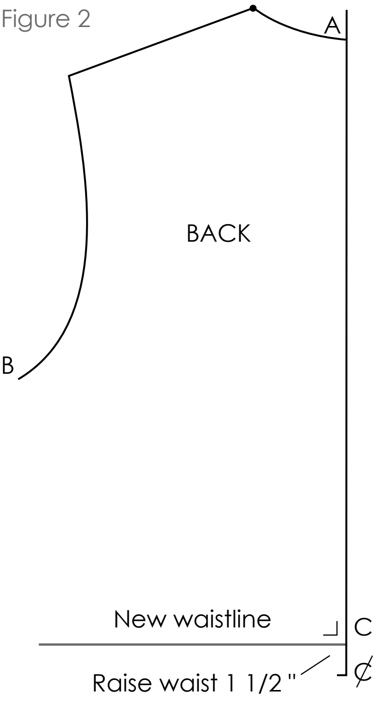


Figure 2



Waist, Side Seam, and Neckline

Figure 3

*C–D = waist arc (19), less 1/2 inch. Mark.

Draw a line from D 1 inch past B and blend to the armhole. Draw an inward curved line for side seam.

Draw the front neckline 1 1/2 inches down from A. Measure the armhole and record.

Crotch Line

Figure 4

C–E = one-half of crotch length (28), less 1 1/4 inches.

E–F = one-half of E–C, plus 1 inch (hip level).

*F–G = hip arc (23), less 1/2 inch squared from F.

E–H = 1 3/4 inches squared from E (*1/8 inch less for sizes under 10; 1/8 inch more for sizes over 12*).

H–I = 3/8 inch squared up from I to the F–G line.

- Divide F–G in half. Draw a 1 3/8" angle line at the corner.

Figure 5 Front Leg Opening

- Crossmark 3/8 inch from G and up 1/2" where shown.
- Mark a point 2" up from 1.
- Draw curved leg opening, as shown. Curve may or may not touch the angle line.

Figure 6 Back Leg Opening

- Draw a line passing the 3/8 inch crossmarks at G and I. At the center, square out 1 inch. Label K.
- Draw lines from K, touching the crossmarks.
- Draw a curved line from K, passing the crossmarks.

Separate Patterns

Place paper under the draft. Pin or staple together. Cut the outline of the back pattern. Unpin and remove the draft from the back pattern. Trim the front neckline and legline of the front pattern.

Higher Legline

For higher legline cuts, see next page. Complete the pattern and test fit.

Mark the bust point and bust circumference at the time of fitting.

*Subtract 1 1/2 inches at the waist and hip arc if milliskin knit (four-way stretch) is used.

Figure 3

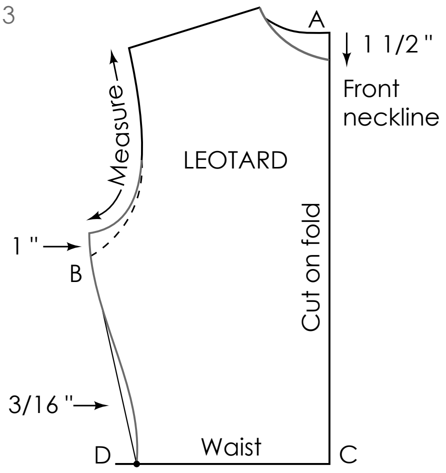
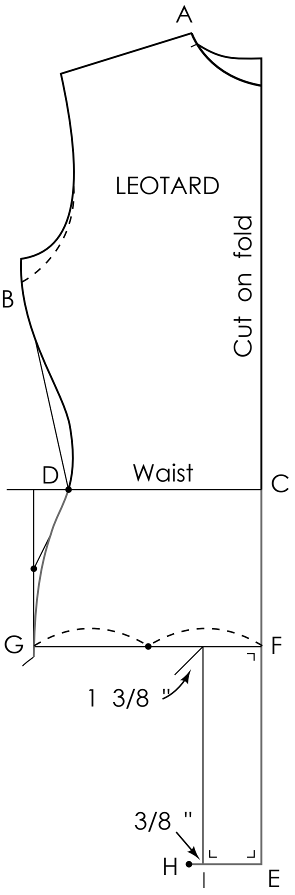


Figure 4



Designs with centerline seams, add 3/8"

Figure 5

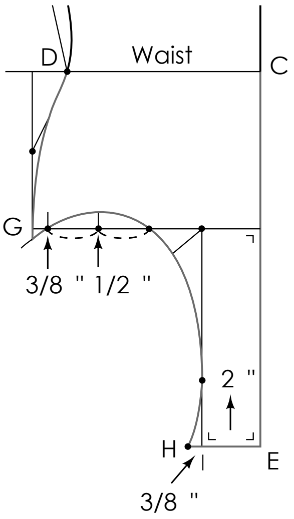


Figure 6

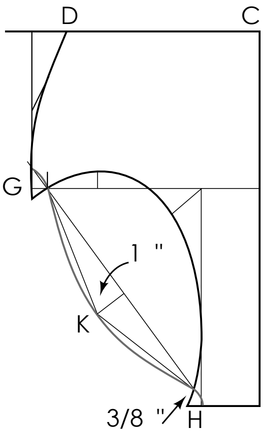


Figure 6

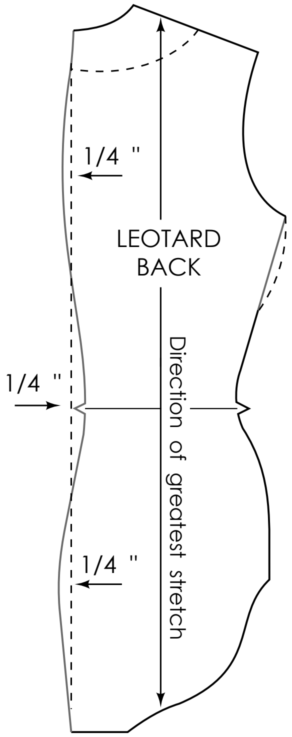

1/4 "
LEOTARD
BACK
1/4 "
Direction of greatest stretch
1/4 "

Figure 7

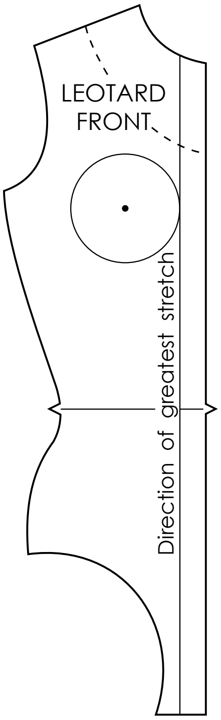

LEOTARD
FRONT
Direction of greatest stretch

Figure 6 Back Leotard

- Trim side seam, removing curve at side seam.
- Trace a second copy and modify for a closer fit.

Figure 7 Front Leotard

- Trim draft to the front neckline and leg opening.
- Label patterns and draw a line for the direction of greatest stretch.

Figures 8, 9 High-Cut Leg Opening

Back

- Mark G at the mid-point at side hip. Draw a line from G to I. Cross-mark 3/8 inch from G and I. Mark a point that is centered (K) and square out 1/4 inch from K. Shape the back leg opening, passing through crossmarks G and I.

Front

- Mark the mid-point of the side hip (G) and draw an inward curved line to I. Check crotch seams, allowing for 3/8-inch-stitch seam.

Figure 8

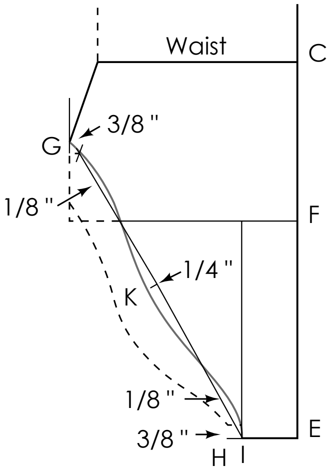
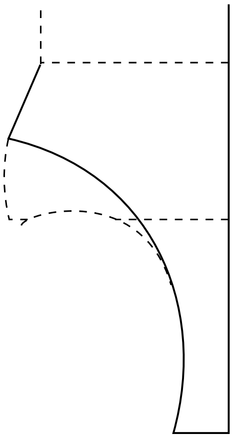

Waist
C
3/8 "
G
1/8 "
F
1/4 "
K
1/8 "
3/8 "
H
I
E

Figure 9



Leotard Adjustment Guidelines

Figure 10

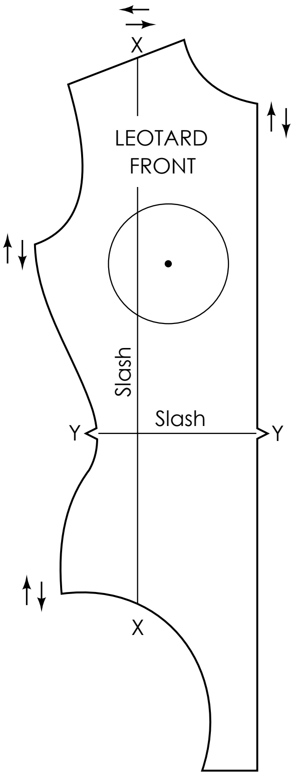
Draw a line through the length, labeled (X) and width at the waist, labeled (Y). The X and Y lines are spread or overlapped to correct the fit.

Test Fit

Check for looseness or tightness in the length between the crotch and shoulders. Pin to take up looseness. Do not take in too much fabric to avoid stressing the fibers. If tight, spread in increments of 3/8 inch.

Mark bust point and circumference and transfer to the pattern.

Figure 10


X
LEOTARD
FRONT
Slash
Y
Slash
Y
X

All-in-One Leotard

The all-in-one leotard is developed for stylelines crossing the figure at varying locations without the need to be concerned about seams, except for the seam at center back. Design neckline of your choice.

The All-in-One Leotard Draft

Figure 1

- Trace the front and back on fold, overlapping side seams at the armhole and hip.
- Square guidelines at the bust and waist.

  C–D = A–B space (between the front and back waist).
- Shape the center back seam, as illustrated.
- Cut the pattern from the paper.

Figure 2

- The completed pattern shape is illustrated. Mark with a pyramid shape (Δ) to indicate the side of the pattern.
- Complete the pattern for test fit.

Figure 1

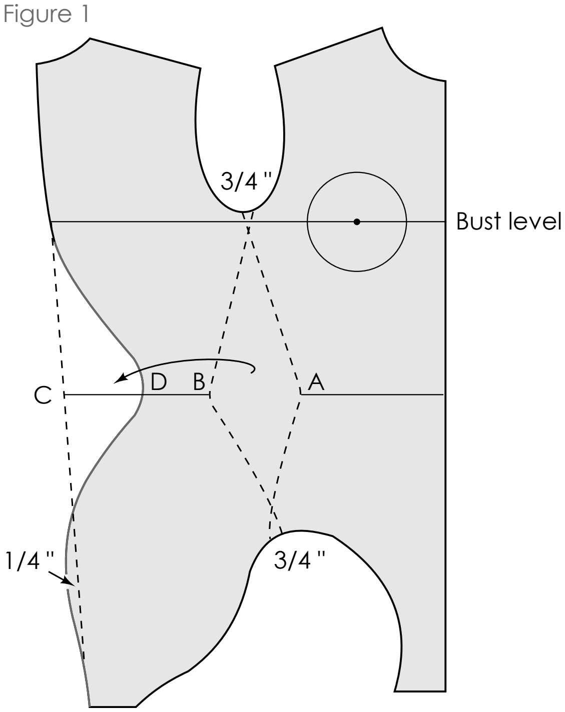
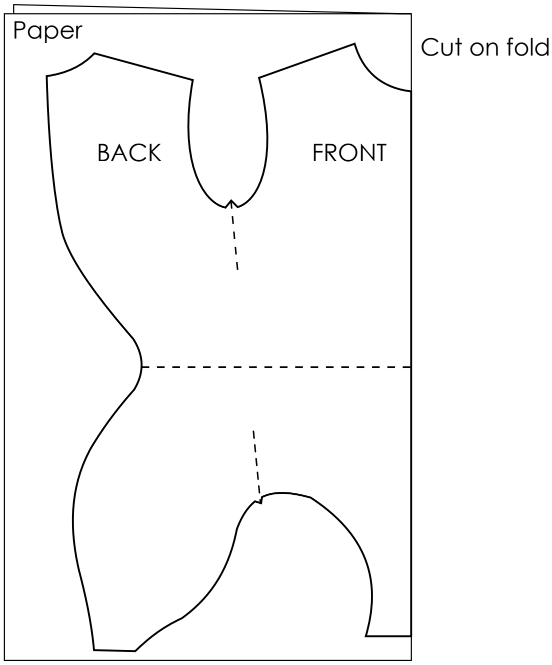
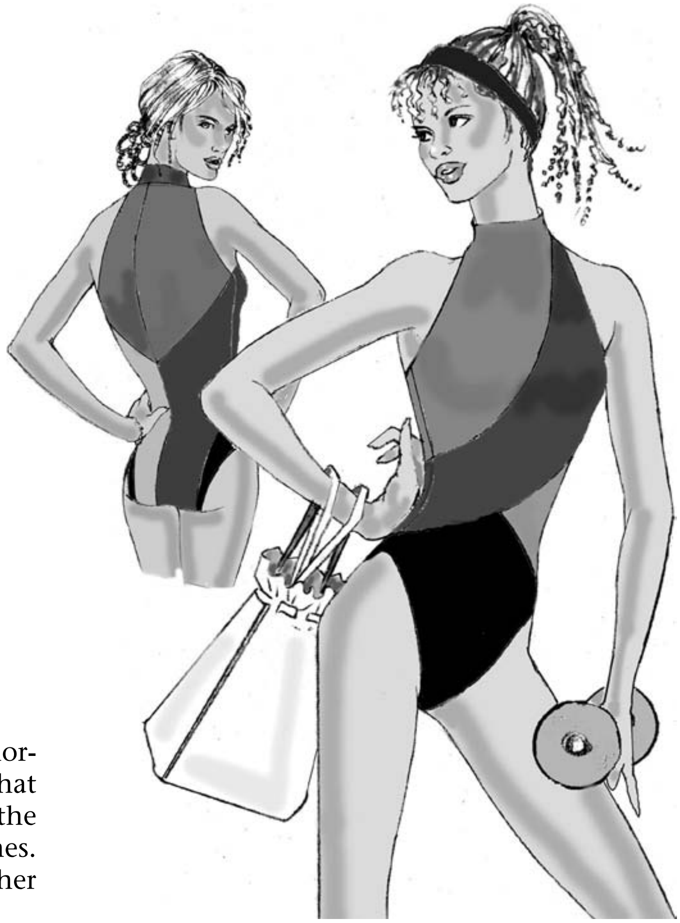


Figure 2



Design 1



Color-Block Design for Leotard

Design Analysis—Design 1

The all-in-one leotard foundation is the base for the color-block design. Three colors are selected (any three that combine well) and are drawn on the pattern. Use the sketch and plot to help in the placement of the stylelines. This design is only one example of the many other arrangements using two or more colors.

The Color Block Draft

Figure 1
- Trace the pattern on fold.
- Draw a high neckline (one-fourth of the neck circumference), as illustrated.
- Draw a halter styleline (includes seam allowance).
- Cut the pattern from paper and unfold.

Figure 2 Placement of Color Blocks
- Plot color blocks.
- Mark notch or pyramid symbols to help control the garment parts when stitching.
- Cut and separate the pattern along the stylelines.

Figure 1

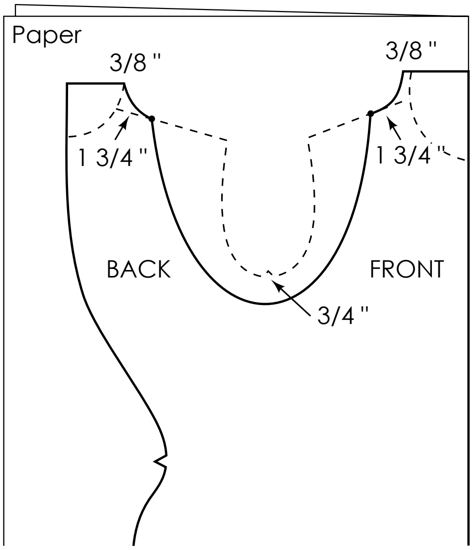


Figure 2

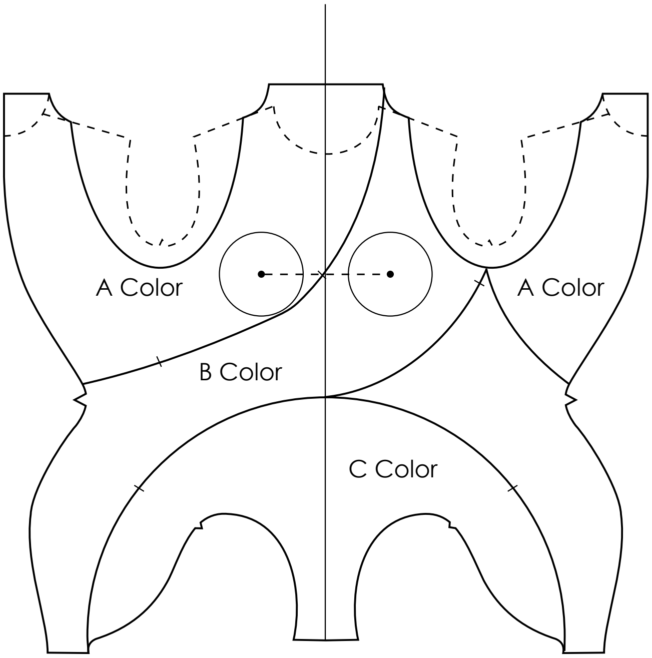
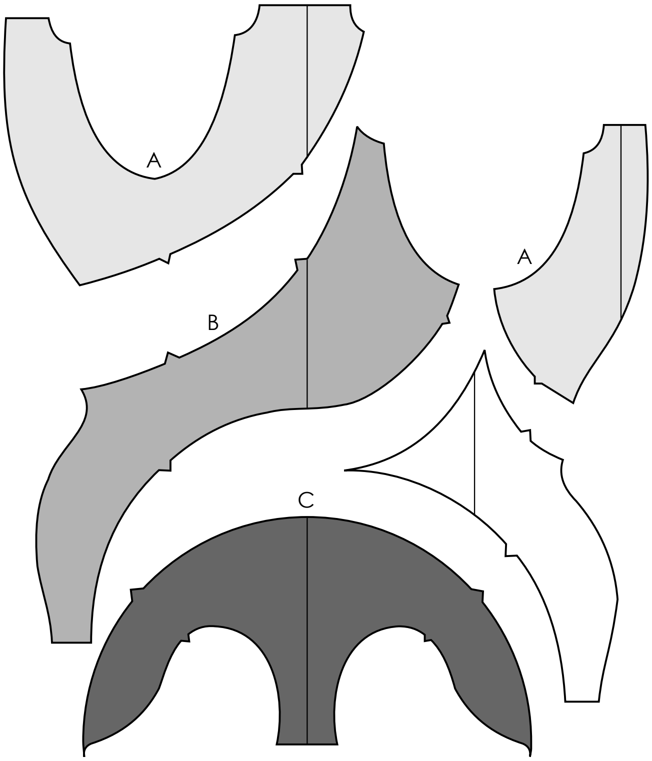


Figure 3 Separated Patterns
- Add 3/8-inch seams to all joining sides of the color block patterns. The pyramid symbol is illustrated.
- Complete the pattern for a test fit.

Figure 3



Leotard with Raglan Sleeve

The leotard with raglan sleeve can be worn over tights or as a top to be worn with pants and skirts. It can be worn for dance or exercise. Other designs can be developed from this versatile pattern. The measurements given are approximate.

Design Analysis

Design 2 is a basic raglan (with bordered stretch eyelet fabric). Design 1 is a thought problem.

Raglan Sleeve Draft

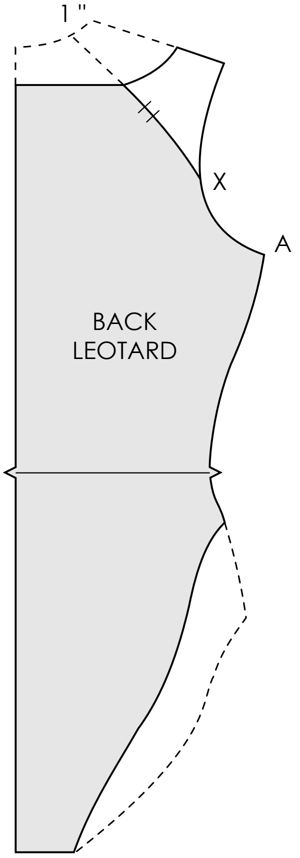
Figures 1, 2

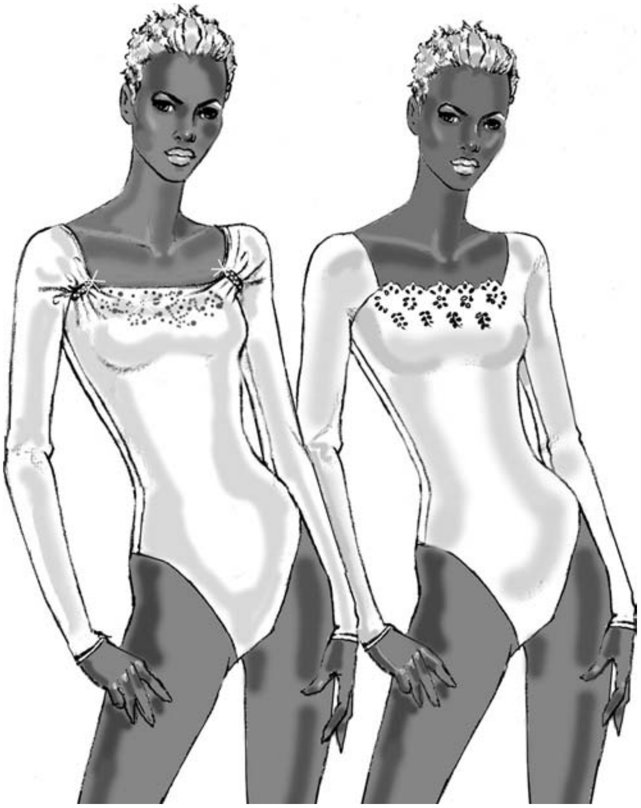
- Trace the front and back leotard and sleeve patterns.

  A–X = one-third of armhole.

  B–X = A–X.
- Draw raglan line 1 inch from shoulder-neck.
- Use the basic or high-cut legline. Refer back three pages.
- Draw style neckline and cut patterns from paper.

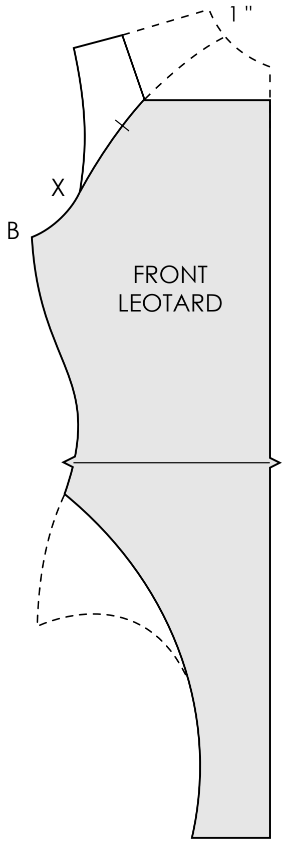
Figure 1




Design 1

Design 2

Figure 2



Figures 3, 4 Separate Pattern

- Trim patterns to the cut-out neckline.
- The bottom part of the pattern is complete.
- Add 3/8 inch to raglan styleline.

Figure 3

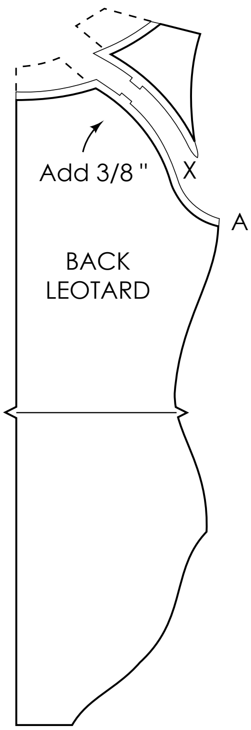

Add 3/8 "
X
A
BACK
LEOTARD

Figure 4

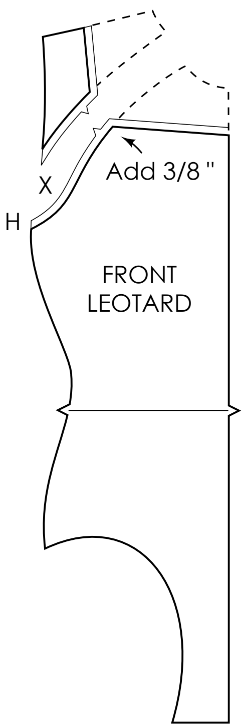

X
Add 3/8 "
H
FRONT
LEOTARD

Figure 6

- Cut the pattern from the paper.
- Complete the patterns and cut for a test fit.

Note: If notches are preferred, the notch depth is 1/8 inch.

Figure 5 Raglan Sleeve

- Place the knit sleeve on fold of the paper and trace.
- Mark X, using the A–X measurement of the back pattern.
- Place the raglan yoke on the sleeve, overlapping cap by 3/4 inch (eliminates seam allowance). Blend at joining points.
- Trace the pattern.

Figure 5

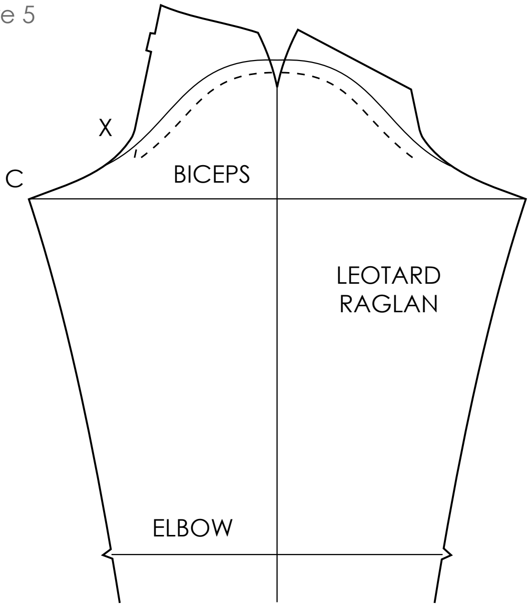
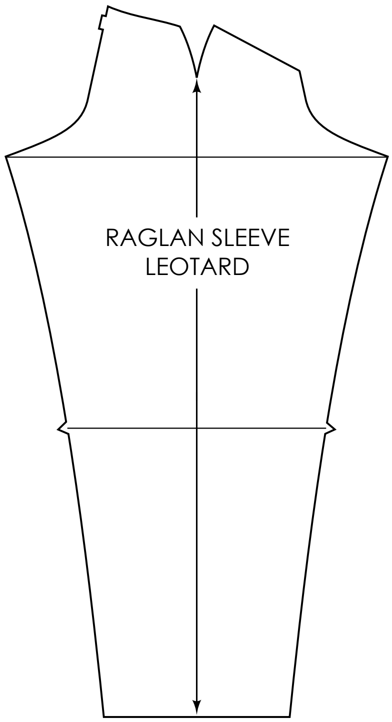
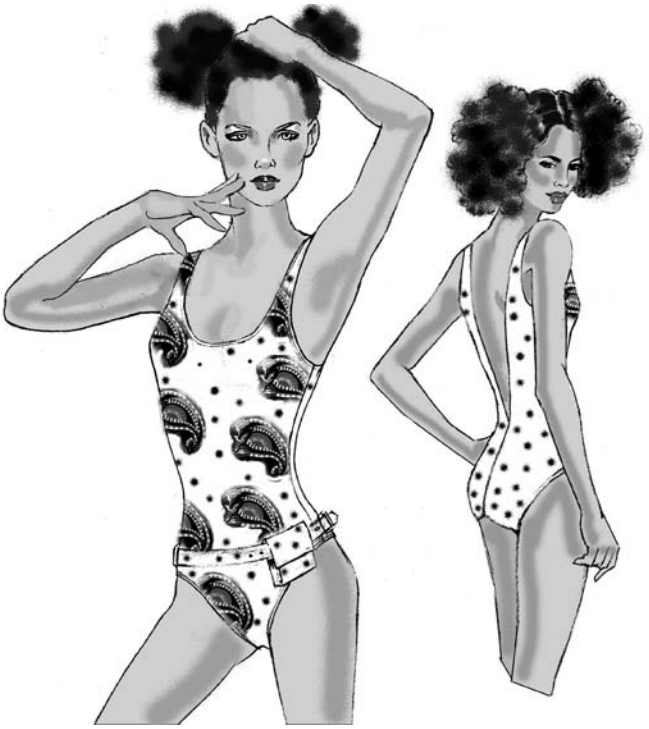

X
C
BICEPS
LEOTARD
RAGLAN
ELBOW

Figure 6


RAGLAN SLEEVE
LEOTARD

Basic Tank Leotard



The basic leotard can be worn alone or over a bodysuit or tights. It can also be worn as a top with pants and skirts. The back strap placement is toward the back neckline. The following information explains the need for the strap adjustment.

Back Strap Adjustment

The strap placement of the back pattern for leotard, bodysuit, and maillot designs having a low cut-out neckline require strap adjustment. Cutting out parts of the back causes the knit fabric to relax and gap along the cut line of the back styleline. To eliminate gapping, slash the pattern along the waistline (after the styleline has been plotted on the pattern) to, but not through, the side seam. Overlap the pattern until the strap swings to the shoulder-neck or toward the center back neckline. Mend the pattern and reestablish the styleline of the back, if necessary. The example is part of the tank top design (another version follows).

Tank Top Draft

Figures 1, 2

- Trace the front and back leotard patterns.
- Plot the tank top stylelines, using the illustration as a guide. Choose the basic or high-cut legline.
- The shoulder strap of the back pattern can be pivoted so that the slash and overlap are not required. (If you are unsure, slash and overlap.)
- Add 3/8-inch seams at the cut-out neckline and armhole.
- Cut pattern from the paper.
- Complete the pattern for a test fit.

Figure 1

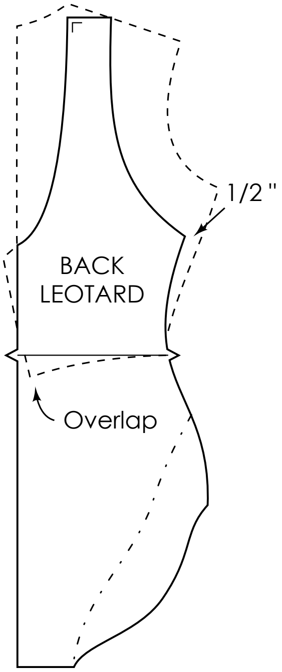
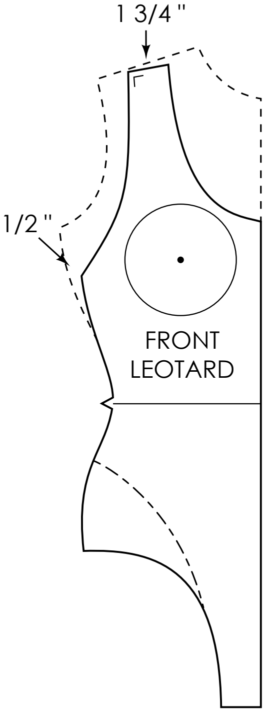


Figure 2



FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

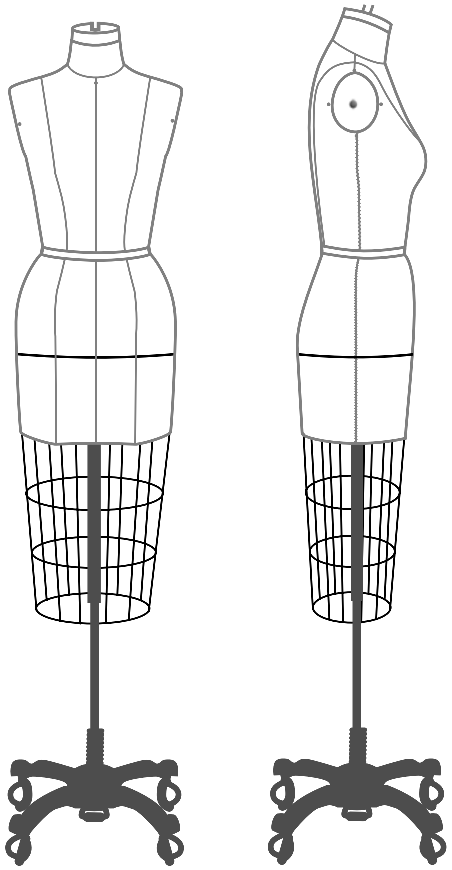
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

*Measuring the Arm

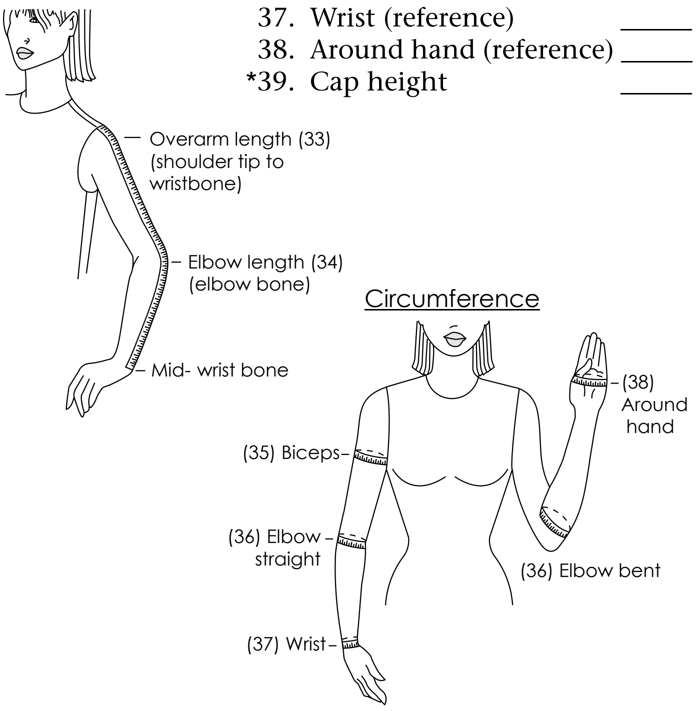
Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____


Length
Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone
Circumference
(38) Around hand
(35) Biceps
(36) Elbow straight
(36) Elbow bent
(37) Wrist

This page intentionally left blank

Swimwear

From Chapter 30 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

Swimwear

SWIMWEAR TYPES
MAILLOT FOUNDATION
- Maillot Draft
- Basic Tank-Top Maillot
- Maillot with Bra Lining
- Princess Maillot
- Maillot with Inset Bra
- Asymmetric Maillot

BIKINI FOUNDATION
- Bikini Based on Maillot or Leotard Foundation
- Bikini Based on Front Skirt Foundation

BIKINI BOTTOM VARIATIONS
- High-Cut Leg Bikini

BIKINI TOP VARIATIONS
- Princess-Line Bikini Top
- Strap Variations
- Bra Top with Horizontal Styleline
- Bra Tops for Bikini Bottoms
- String-a-Long Bikini Top
- Bandeau Bikini Top

LITTLE-BOY LEGLINE FOUNDATION
- Little-Boy Legline Variations
- Little-Boy Draft

FULL-FIGURE SWIM FOUNDATION
- Full-Figure Swim Draft
- Swimsuit with Skirt Front

SUPPLIES AND SPECIAL INFORMATION
- Use of Elastic
- Finishing Crotch and Shoulder
- Bra Cups for Swimwear
- Attaching Straps to Swimsuit

SWIMWEAR TYPES

In the nineteenth century, swimwear covered the female figure from neck to lengths that fluctuated between the knee and ankle. These suits were not always conducive to swimming. Today's swimwear fashions cover much less and allow complete freedom of movement. They are designed in a variety of fabrics, prints, and textures, ranging from cotton to stretchy knits.

The four swimsuit foundations illustrated in this chapter have distinct characteristics and differ from one another in a number of ways: the cut of the legline, the type of bust support, the type of fabric in which the suit is cut, and the silhouette desired.

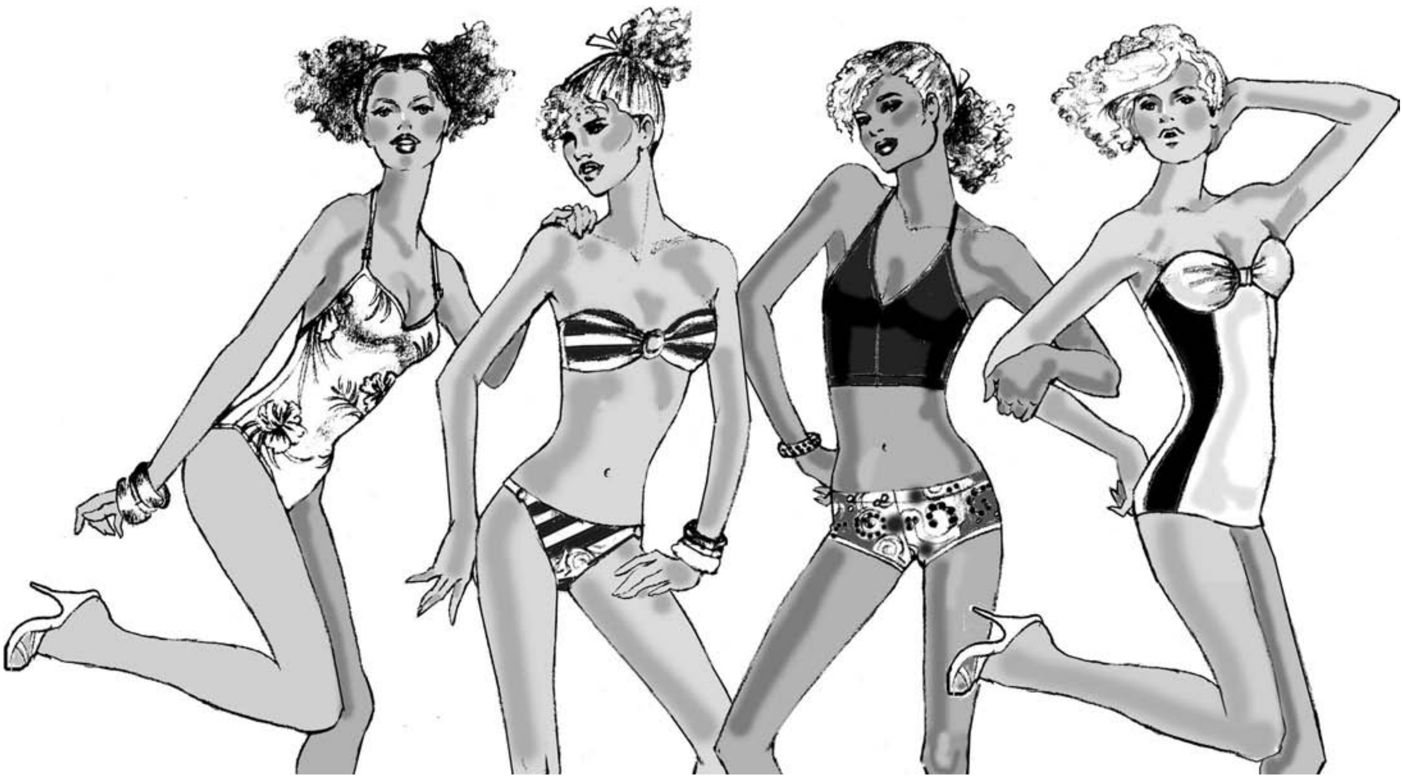
Maillot foundation. The cut of the legline encircles the leg starting at crotch level and ends at varying distances above crotch level at the side. This one-piece suit is usually cut in stretchy knits and clings closely to the figure's contour. The maximum stretch goes around the figure rather than up and down. Very little stretch is required in the length of the garment. The maillot has little or no bust support. Draft begins on next page.

Bikini foundation. The cut of the legline of the two-piece bikini encircles the leg starting at crotch level and ends at varying distances above crotch level at the side. It can be cut in any fabric. The bra top can be developed with underwire or have little or no bust support. Draft begins in Bikini Foundation section later in this chapter.

Little-boy legline foundation. A one-piece or two-piece (separated at or just below the waistline) foundation has a legline ending at the shorts or short-shorts length. Because the foundation is developed with waist and side dart control, the bust shape is defined and bust cups can be added for support, if desired. The foundation can be cut in rigid fabrics or firm knits (little stretch). This foundation is also an excellent base for tennis garments and sunsuits. Draft begins in Little Boy Legline Foundation section later in this chapter.

Full-figured foundation. The one-piece foundation has a legline ending at crotch level. Because the foundation is developed with waist and side dart control, the bust is defined through the use of darts. Bust cups are inserted. This foundation is often used as the base for full-bodied or mature figures. It can be cut in all fabrics. The crotch area is often covered by a short skirt stretched across the legline just below crotch level. Draft begins in Full-Figure Swim Foundation section later in this chapter.

Important: When cutting knits, the maximum stretch goes around the figure, rather than up and down the body. Knits combined with spandex or latex are best.



Maillot Bikini Little- boy Full figure

MAILLOT FOUNDATION

The maillot swimsuit is developed for knit fabrics having from 30 to 100 percent (or more) stretch with excellent recovery. Maillot designs cut in knits with less stretch can be adjusted by increasing their length and width. The fit for bra cups can be determined at the time of fitting. Swimwear designed for production should be test fit on the figure and tested for water retention and drying time. Swimwear knits should be chlorine-tested before purchase. The greatest stretch goes around the figure and not up and down the garment.

Seams are included in the maillot draft, except at the center front and back to be cut on the fold. The draft foundation fits to the natural neck as a guide for drawing cut-out necklines. Trace the foundation and draw a neckline of your choice. Remember to add 3/8" seams to the neckline design. The bust point and bust circumference are marked at the fitting and transferred to the foundation pattern.

Maillot Draft

The draft is based on any of the *back* patterns.

The basic back pattern illustrated.

The draft includes 3/8-inch seams.

Measurements Needed

(19) Front waist arc _______________.
(23) Front hip arc _______________.
(28) Crotch length _______________.

Figures 1a, b

If there is a shoulder dart, modify as shown (Figure 1a).

- Draw a vertical line on paper.
- Place back pattern 3/8 inch beyond the line.
- Trace the neckline (A) to armhole (B).
- Mark waist C. Remove the pattern (Figure 1b).

Figure 2

- Square a line 1 1/2 inches up from waistline and re-mark point C.

Figure 1 a

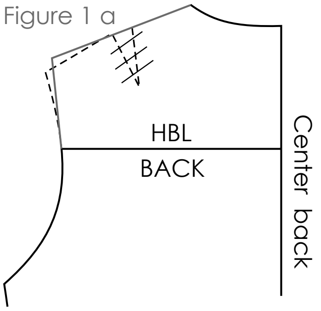


Figure 1 b

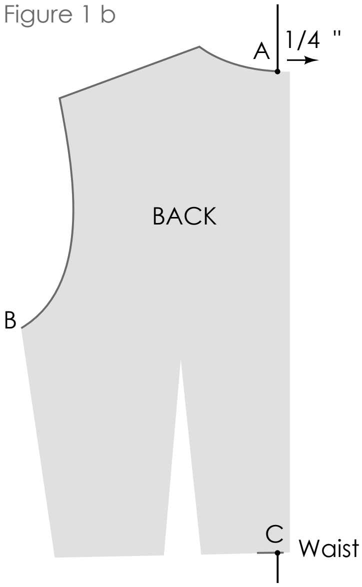
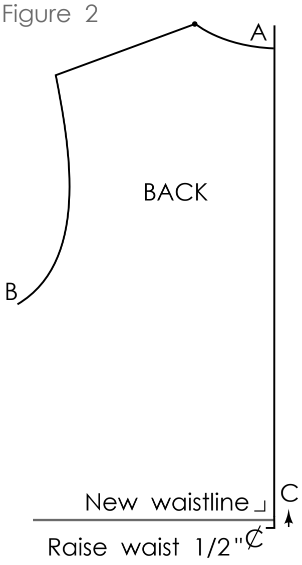


Figure 2



Waist, Side Seam, and Neckline

Figure 3

C–D = Waist arc (19), less 1 inch. Mark.
Draw a line from D to B.
Draw an inward curved side seamline.
Draw a front neckline 1 1/2 inches down from A.
Cross-mark 3/8" at shoulder.

Crotch Depth and Hip

C–E = One-half of crotch length (28), less 3/4 inch. Line extended down from C.

C–F = One-half of C–E, less 1 inch.

F–G = Hip arc (23), less 1 inch squared from F and squared up from G to waist.
Mark halfway between G and F.

E–H = 1 3/4 inches squared from E (1/8 inch less for each size under 8; 1/8 inch more for each size over 12).

H–I = 3/8 inch. Square up from I to the F–G line. Draw a 1 3/8 inch angle line.

- Mark 2 inch up from I.

Figure 4 Front Leg Opening

- Mark 3/8 inch from G and up 1/2 inch from mark.
- Draw leg line, as shown. (Curve line may or may not touch the angle line.)

Figure 5 Back Leg Opening

- Draw a line crossing the 3/8-inch crossmark at G and 3/8 inch up from I.

  Square out 1 inch from center. Label K.
- Draw lines from K, touching G and I at crossmarks.
- Draw curved lines from K, passing the crossmarks.

Separate Foundation Patterns

Figures 6a, b

Place paper under the draft. Back: Secure and cut the outline of the pattern. Unpin and separate. Front: Trim to the basic front neckline and cut-out leg.

To modify the patterns, trace patterns and follow broken lines.

Elastic Stitching Guide

- Complete the pattern, cut, overlock, and test fit (leave a 7-inch opening at C.B.) if basic neckline is traced.
- Mark bust point and bust circumference.

Figure 3

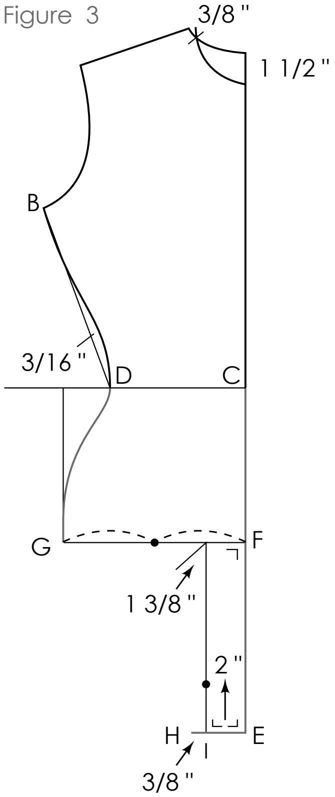


Figure 4

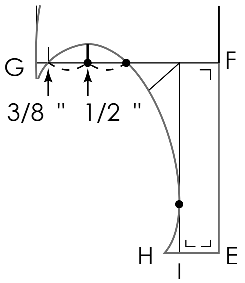


Figure 5

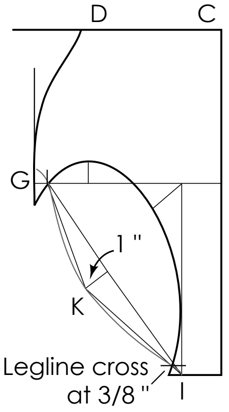


Figure 6a

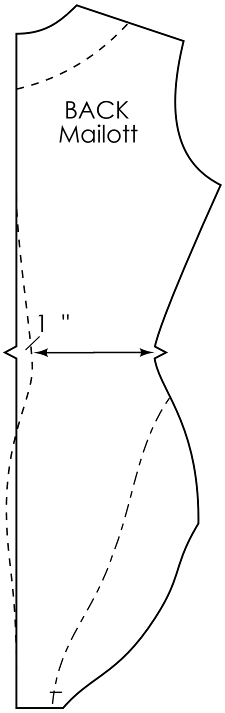
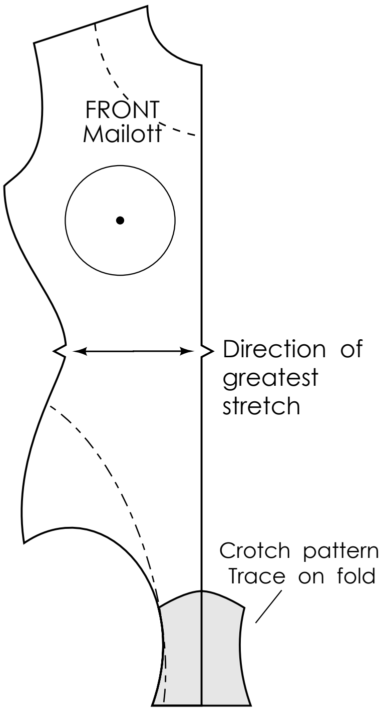


Figure 6b



Basic Tank-Top Maillot

Two versions of the basic tank-top maillot swimsuit are given—a tank top without a bra cup and a tank with a modified pattern allowing room for a bra cup.

Maillot Draft Without a Bra Cup

Figures 1, 2

- Trace the basic front and back maillot foundation patterns (3/8-inch seams are included in the patterns).
- Plot the design, using the illustration as a guide.
- Cut the pattern from the paper.
- Complete the pattern for a test fit.

Maillot Draft with Bra Cup

Figure 3

- Plot the tank-top swimsuit.
- Draw slash lines from the armhole and side seam to the bust point.

Figure 3

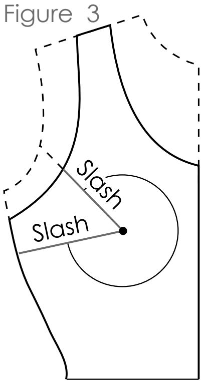


Figure 4

- Slash from side to bust point and to, not through, armhole. Spread 3/4 inch. (For smaller bust cup, subtract 1/4 inch; for larger bust, add 1/4 inch to each cup size greater than B cup.)

Figure 4

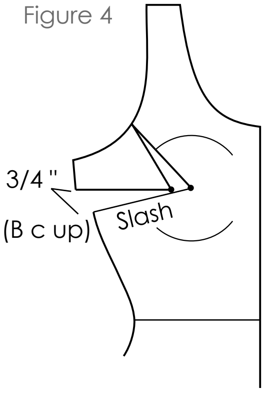


Figure 1 Figure 2

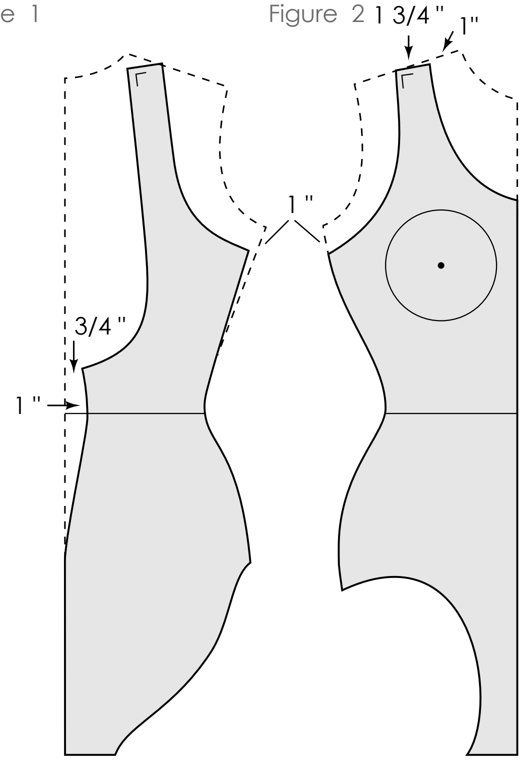
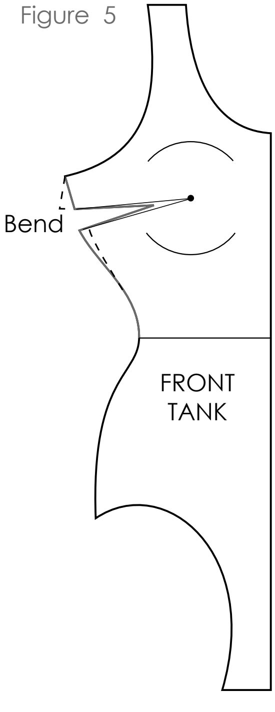


Figure 5

- Center the dart point 1 inch from the bust point.
- Fold the dart and redraw the side seam by taking from the dart leg, adding to the other equally.
- See Bra Cups for Swimwear section later in this chapter for instruction on bust cup insertion and attachment to the swimsuit. Test fit.

Figure 5

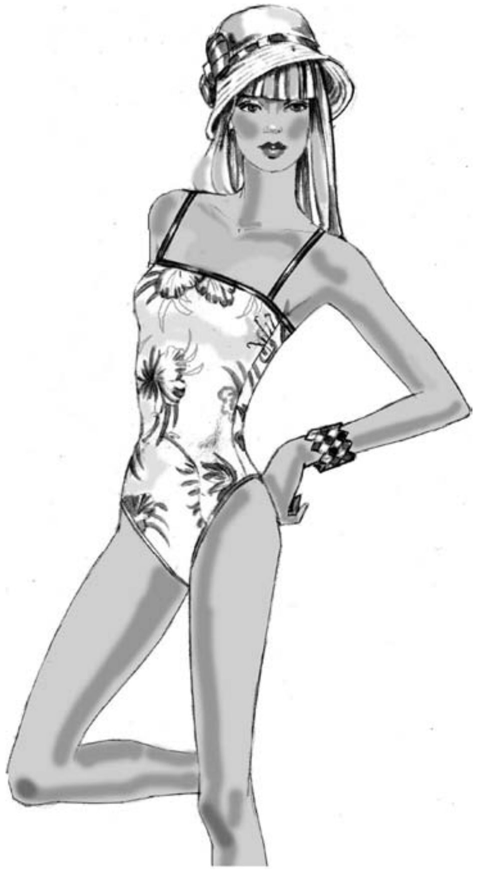


Maillot with Bra Lining

The maillot swimsuit is designed with a bra lining. Follow this example for other swimsuit designs requiring inside coverage over the bust area.

Design Analysis

The styleline is across the bust with gathers at the side of the front garment. Legline can be a basic cut or a high cut.



Maillot Design Draft

Figure 1 Front

- Measure 2 inches above the armhole at the side (includes seams). Label A. Add more for greater fullness, if desired.
- Square a line from the center front to A.
- Square a line from the center front 1 inch below bust. Label B (guide for bra lining).
- Crossmark 1 inch below point A and 1 inch up from point B (notches for gather control).

Figure 2 Back

- Plot styleline for back design.
- Crossmark 1/2 inch down from the armhole. Label F.
- Measure up from the waistline D to E equal to C–B measurement of front. Crossmark.
- Mark for notches 1 inch down from F and up 1 inch from E.

Figure 1

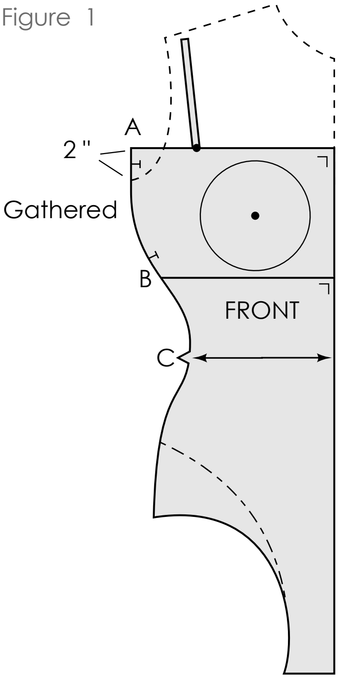


Figure 2

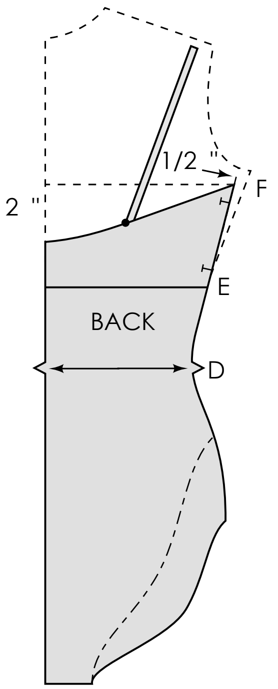


Figure 3 Strap

- Measure the length of the strap, less shoulder seam allowances. Add the front and back strap lengths together.
- Draw the length of the strap and width of 1 inch.

Figure 3

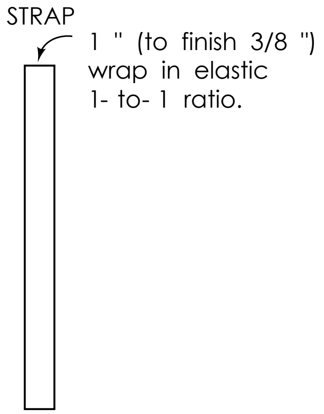

STRAP
1 " (to finish 3/8 ")
wrap in elastic
1- to- 1 ratio.

Figure 4 Bra Lining

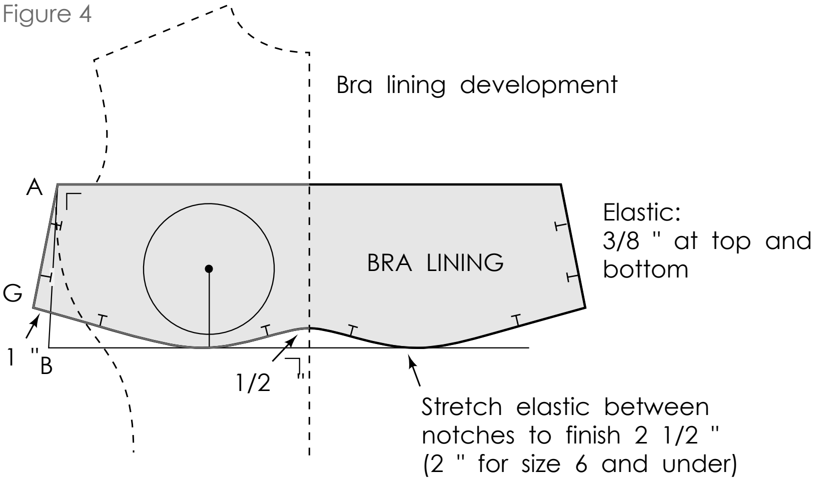
- Fold the paper and trace the bra section of the pattern (broken lines). Square from A to B level. Remove pattern.
- Draw a line from A to G that is equal to E–F of the back measurement and out 1 inch from the side of the lining pattern.
- Mark gather control notches 1 inch down from A and 1 inch up from G.
- Draw under-bust shape, using the illustration as a guide.
- Mark gather control notches under the bust, using the center front to the original side seam as a guide.

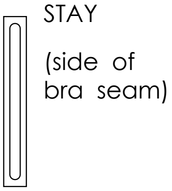
Elastic

Elastic is placed along the bottom of the bra lining and is stretched between the notches to finish 2 1/2 inches (2 inches for size 6 and under). The elastic is stitched into the side seam to secure. The upper bra lining is taken in with the top garment. The lining is cut from light-weight tricot or its equivalent.

- Use a 5-inch stay (type of plastic boning) at the sides of the swimsuit.
- For the crotch lining, elastic, and strap, see Finishing Crotch and Shoulder section later in this chapter.
- Cut the patterns from paper.
- Complete the patterns for a test fit.

Figure 4


Bra lining development
A
G
1 "
B
1/2 "
BRA LINING
Elastic:
3/8 " at top and
bottom
Stretch elastic between
notches to finish 2 1/2 "
(2 " for size 6 and under)


STAY
(side of
bra seam)

Princess Maillot

The princess line or any styleline crossing the bust point can be extended, making room for the bust and for bra cups to be added to the design when needed. Use this example for other swimsuit designs requiring a bra cup.

Design Analysis

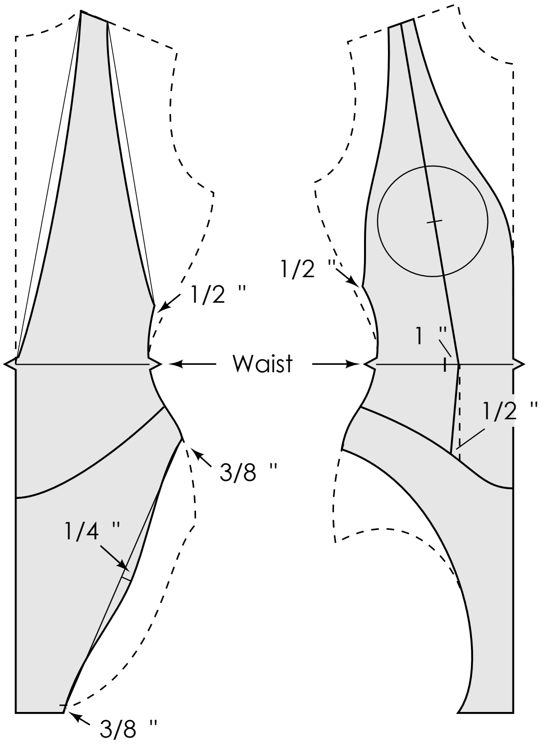
Design 1 and Design 2 are styled with princess lines. Design 1 is illustrated. The maillot pattern is modified for the inclusion of a bra cup. The back is cut low, with the strap continued from the back pattern. The strap can be buttoned at the shoulder or extended for a tie. The gathered circle skirt is stitched into the torso line of the swimsuit. The flare skirt is lettuce-edged.

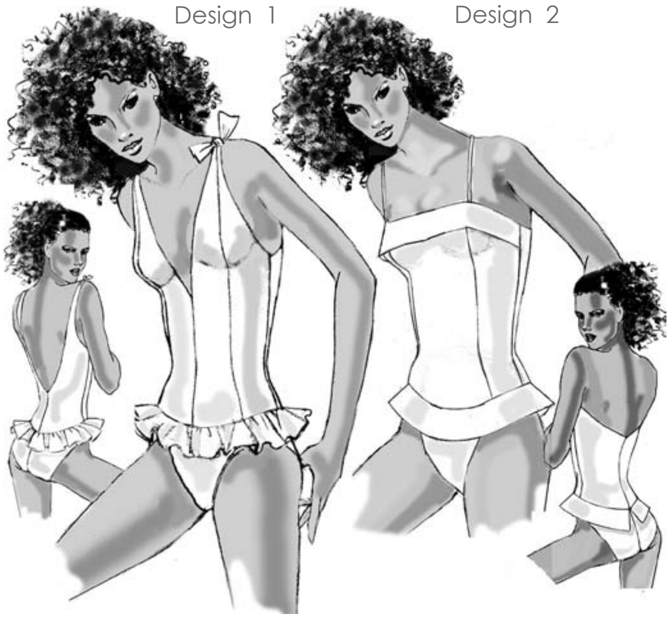
Princess Maillot Draft

Figures 1, 2

- Trace front and back patterns.
- Plot the pattern, using the illustration as a guide. The princess styleline is centered between the strap and shoulder, passing through the bust point and 1 inch in from center at waist. Square down from waist and mark 1/2 inch out. Draw a line to the waist. Cut and separate patterns.

Figure 1 Figure 2





Figures 3a, b, c Separated Patterns

Front

- Add 1 inch out from the bust point at front and side front panels. Slash from bust to side seam and to center front, and spread 1/4 to 1/2 inch or as needed when fitted.
- Mark 1/8 inch out above and below the bust circle.
- Draw a blending curved line over the bust (a, b).

Figure 4

- Draw crotch lining pattern, as shown.
- Add a 3/8-inch seam allowance, where shown.
- Draw direction lines on the patterns and label.

Adding Bust Room

If the bust area is stressed, slash, spread, tape to secure, and measure. Slash, spread, and mend pattern. Cut another sample.

Figure 3a Figure 3b

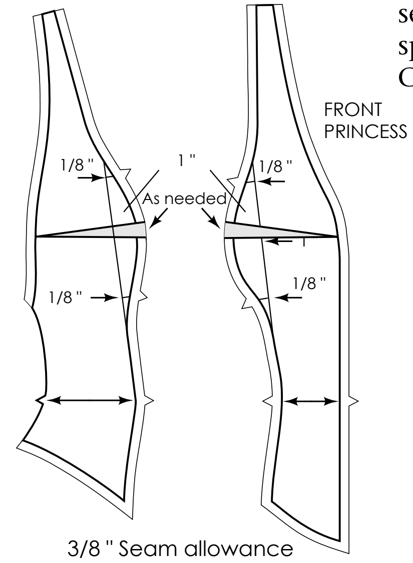
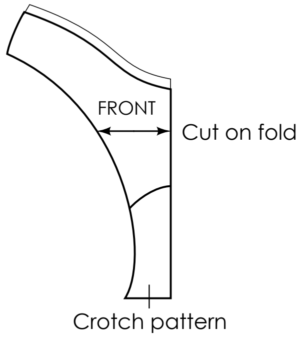


Figure 4



Figures 5 and 6 Back

- Add 3/8 inch seams, label, and draw direction lines on the patterns, where shown.

Figure 5

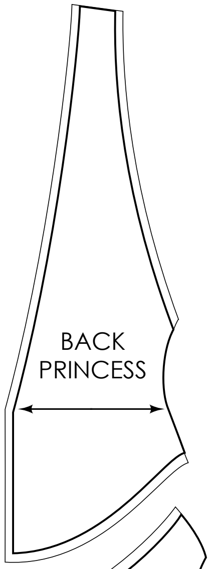
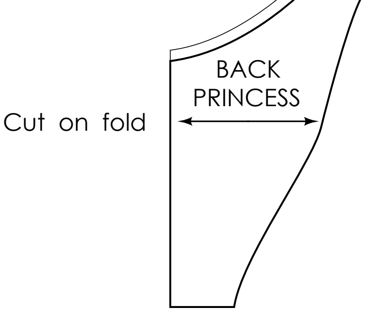


Figure 6



Figures 7 and 8 Skirt Frames

- Trace the skirt frames from the front pant (Figure 8) and the back pant (Figure 9) for spreading.
- Draw slash lines.

Figure 7

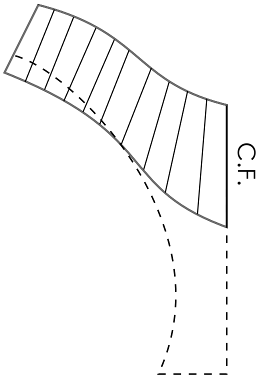
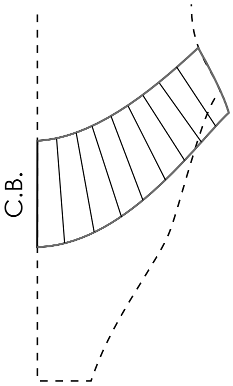


Figure 8



Figures 9 and 10

- Spread the skirt to the amount of fullness desired (example: 2-to-1, 3-to-1, and so on).

Test Fit

- Place the pattern on the knit in the direction of greatest stretch.
- Overlock the garment together.
- For elastic and crotch lining instructions, see the Supplies and Special Information section later in this chapter.
- Place on form or figure.
- If loose around the figure, pin in along side seam or center back.

  If too long in the length, pin along the waistline. Care must be taken not to remove too much stretch (garment may pull downward).
- Check the fit of the legline.
- Correct the pattern if necessary.

Figure 9

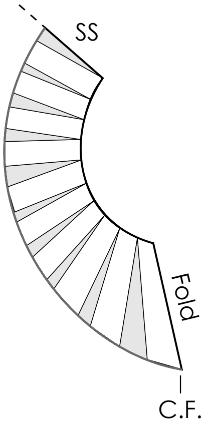
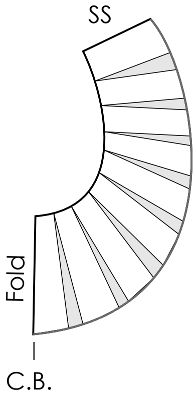


Figure 10

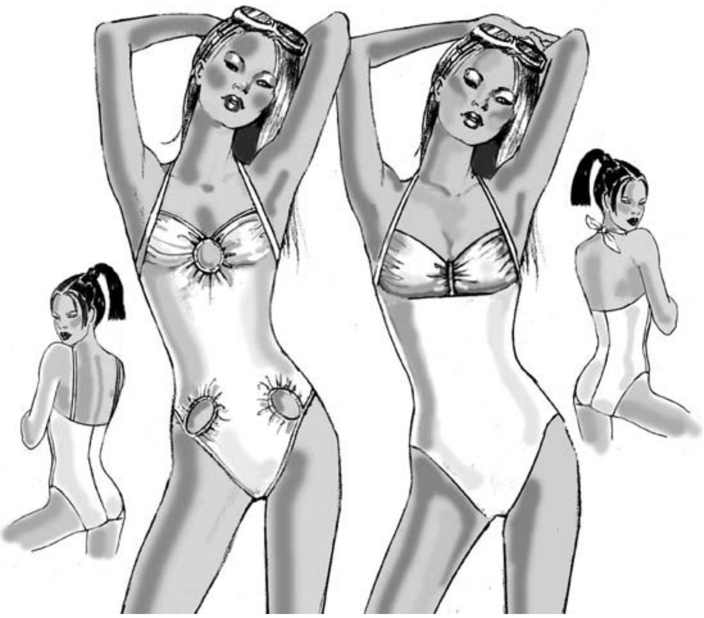


Maillot with Inset Bra

Design Analysis

Design 2—Maillot has a set-in bra and self-loop at center front, holding the excess, and creating a gathered effect.

Design 1 Design 2



Figures 3, 4, 5

- Trace patterns on the fold (back not illustrated). Add fullness to the inset pattern, as indicated. Add 3/8-inch seams at stylelines and at the cut line of the bra and strap.
- Cut the patterns from paper.

Figure 3

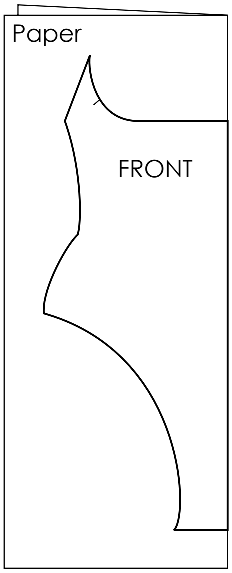

Paper
FRONT

Figure 4

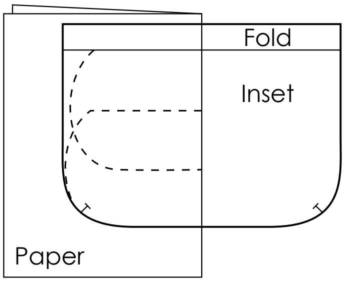
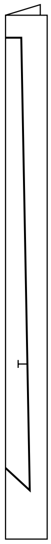

Fold
Inset
Paper
Fullness 1 1/2 " to 1 "
(May be more, or less)

Figure 5



Pattern Plot and Manipulation

Figures 1, 2

- Trace the front and back maillot foundation, including all markings.
- Plot the design on the patterns. Verify that the side seams are of equal lengths.
- Draw strap, as shown.
- Square a line above and below the bust circumference touching strap and notch where shown.
- Cut and separate the pattern sections.

Figure 1

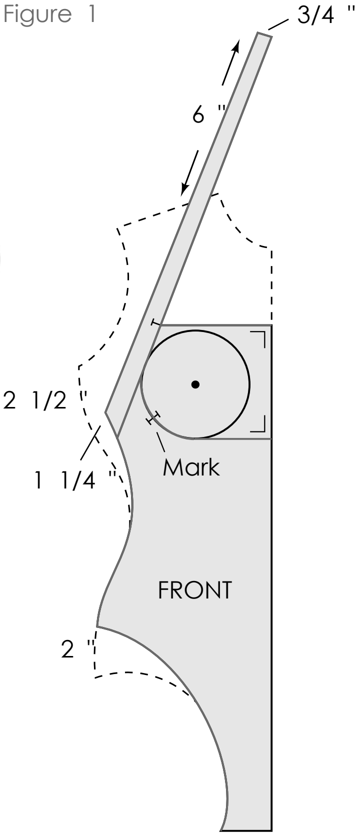

3/4 "
6 "
2 1/2 "
1 1/4 "
Mark
FRONT
2 "

Figure 2

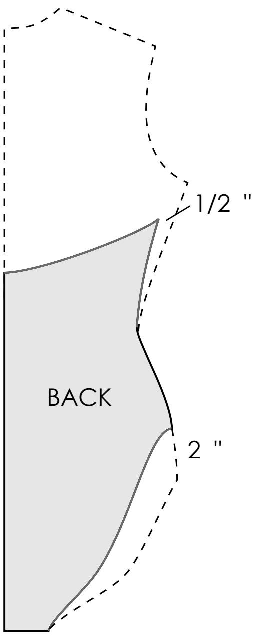
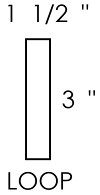


Figure 6

- Draw a loop tab 3 × 1 1/2 inches (finished width 3/4 inch).
- For crotch lining and elastic instructions, see Finishing Crotch and Shoulder section later in this chapter.

Figure 6



Asymmetric Maillot

Design Analysis

The maillot has an asymmetric styleline from the shoulder, across the bust, to a point below the armhole. Added fullness (Principle #2) is shirred into one side of the front.

Pattern Plot and Manipulation

Figures 1, 2

- Trace a full front and full back pattern.
- Plot stylelines and modify the patterns.
- Draw radiating slash lines from the side seam of the front pattern.
- Cut the patterns from the paper.

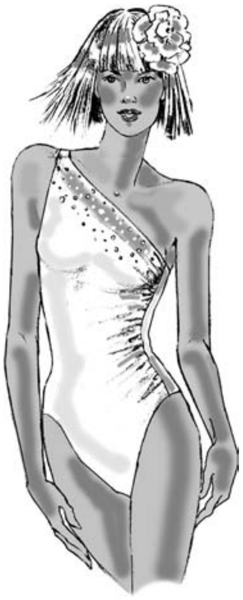


Figure 1

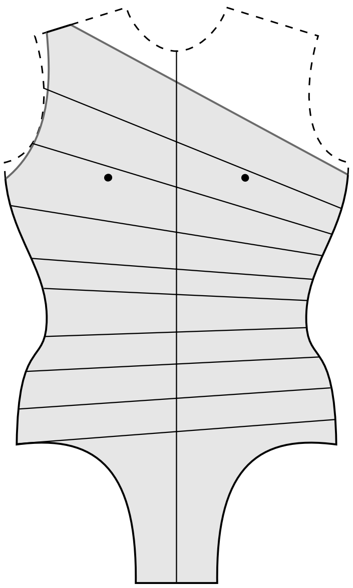


Figure 2

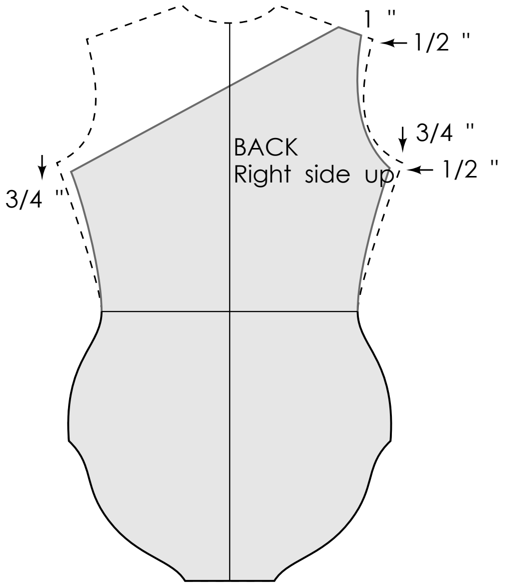
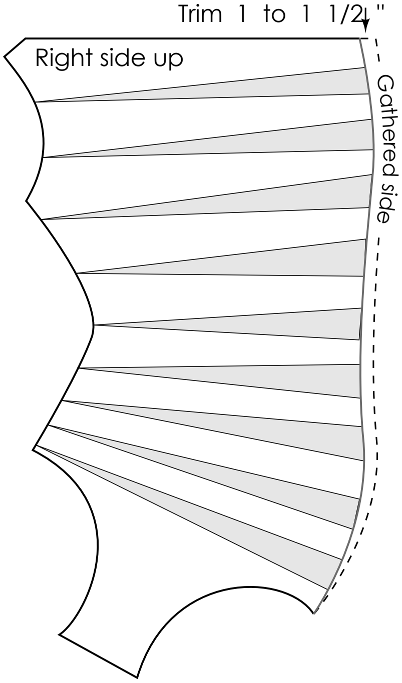


Figure 3

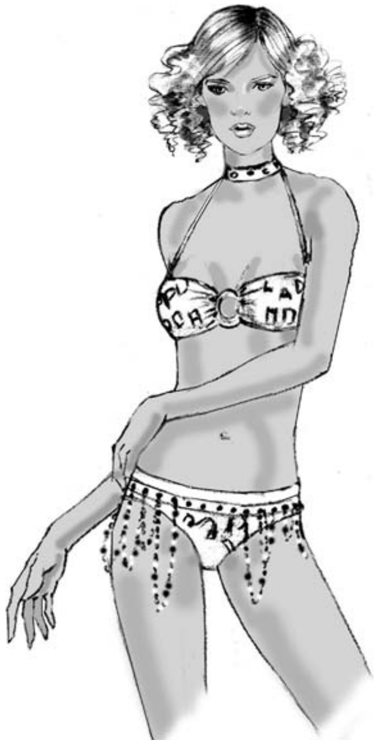
- Measure side seam length and record _____.
- Slash and place on paper. Spread until the side seam equals 1 1/2 to 2 times the original measurement. Spread equally, if possible (example: original side length = 18 inches, spread 27 to 36 inches).
- Secure to paper and trace the pattern's outline. Blend a curved line at the side seam.
- Add a 3/8-inch seam allowance to the asymmetric neckline.
- Remove 1 to 1 1/2 inches from the side where spreading occurred, blending to zero at the legline.
- For crotch lining and elastic instructions, see Finishing Crotch and Shoulder section later in this chapter.

Figure 3



BIKINI FOUNDATION

The bikini is a brief two-piece swimsuit distinguished by its low-cut waistline, high-cut legline, and bra-like top. Bikini styles range from modest to extreme, depending on fashion trends and personal preference, and can be cut in cottons or knits. The bikini bottom can be based on the maillot (or leotard) or developed from the basic skirt front.



Bikini Based on Maillot or Leotard Foundation

Figures 1, 2

- Trace the front and back maillot (leotard) patterns from waist to legline (broken lines show untraced sections).
- Square a line from center front and center back, midway between waist and legline at the side, as shown.
- Cut the bikini bottom from paper. Label *Knits only.*
- Trace another copy, adding 1/2 inch to the side seam, plus 3/8 inch for seam allowances. Label *Wovens only* (not illustrated).

Bikini Based on Front Skirt Foundation

Measurement Needed

- (28) Crotch length _______.

Figures 1, 2

- Trace the front basic skirt from the waist to hip level. Square a line 4 inches down from front.
- Label the center front waist C and *follow instructions for the leotard.*

Adjustments After Completing the Draft

- Trim 1/4 inch from the front and back side seams and cut from the paper.
- Label *Wovens only.*
- Trace another copy. Trim 1/2 inch from side seams.
- Label *Knits only.* (Seams are included.)

Figure 1

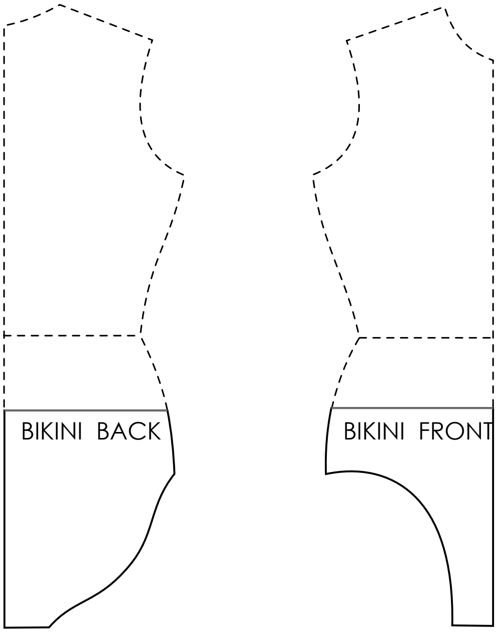
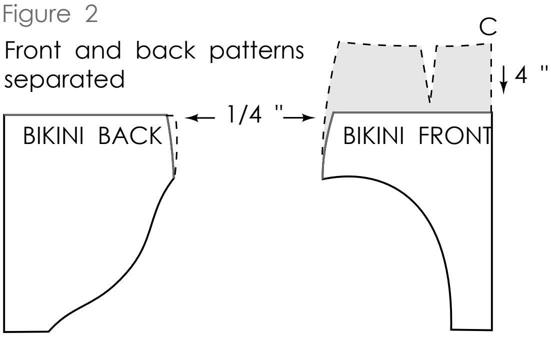


Figure 2

Front and back patterns separated



BIKINI BOTTOM VARIATIONS

Pattern Plot and Manipulation

Figures 1a, b

- Trace pattern with center front and back on fold.
- Add 3/8 inch if cut in wovens.
- Cut from paper and duplicate for the lining.
- For crotch lining and elastic instructions, see Supplies and Special Information section later in this chapter.

Figure 1 a

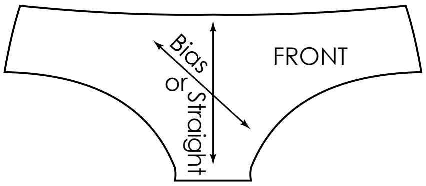
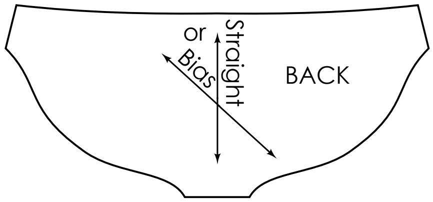
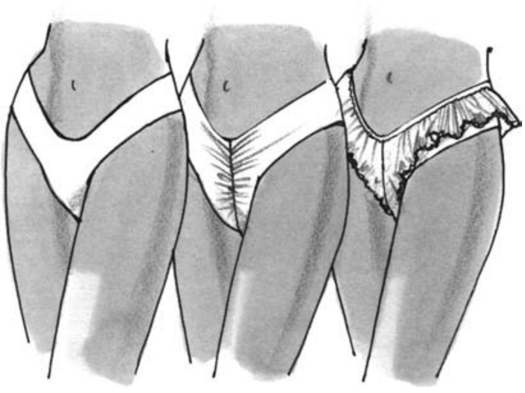

FRONT
Bias
or
Straight

Figure 1 b


BACK
Straight
or
Bias

High-Cut Leg Bikini

The bikini pant can be designed with high-cut leg openings and with different shapes along the waistline if desired.


Design 1 Design 2 Design 3

Figures 2a, b Design 1

- Trace the bikini or maillot.
- Use measurements to complete the design.

A–B = one-third of A–C and D–E = A–B

Figure 2a

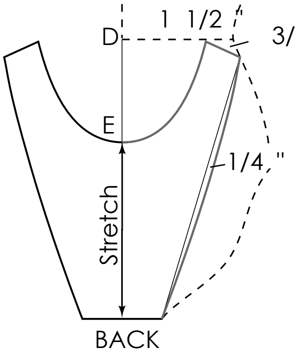
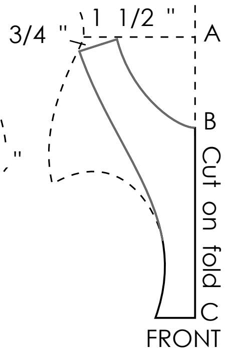

1 1/2 "
D
E
1/4 "
Stretch
BACK

Figure 2b

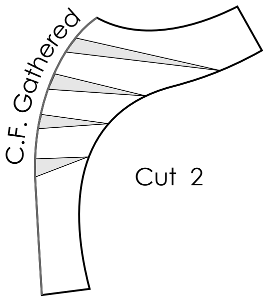

3/4 "
1 1/2 "
A
B
Cut on fold
C
FRONT

Design 2—Gathered Center Line

Figure 3

- Trace style bikini front and spread for fullness.
- Use the back pant to complete the design.

Figure 3


C.F. Gathered
Cut 2

Figures 4a, b, c, Design 3

Front: Trace bikini and spread 2:1 (Figure 4a).

Back: Draw rectangle equal to waist and square to length of the ruffle (Figure 4b).

Spread 2:1 (Figure 4c).

Figure 4a

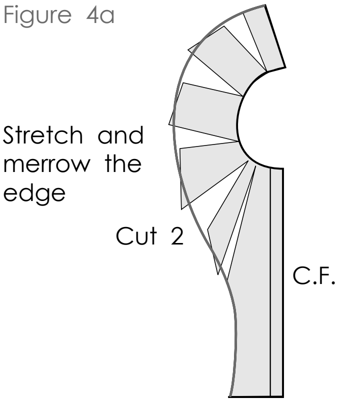

Stretch and
merrow the
edge
Cut 2
C.F.

Figure 4b

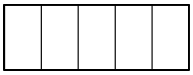
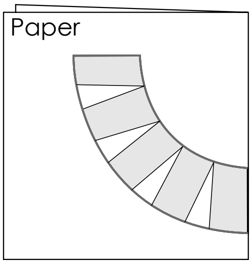


Figure 4c



BIKINI TOP VARIATIONS

The brief bikini top covers the bust much like a bra and is the perfect complement for the bikini bottom. The four tops illustrated should be used as a guide for developing other similar bra designs. The bust circumference is a reference for styleline placement. Follow illustrations and measurements given as a guide for pattern development. Bikini straps can be stitched directly to the top or pulled through a casing, such as spaghetti straps. Straps can extend around the neck or over the shoulders and can be tied or buttoned. Three back strap variations are given.

Princess-Line Bikini Top

Design Analysis

The bikini has a styleline crossing over the bust point from top to bottom (princess line).

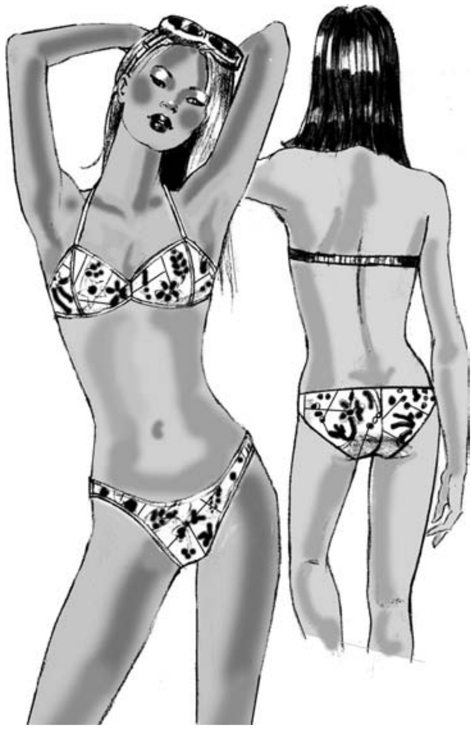


Figure 2
- Cut and separate bikini bra from the pattern.

Figure 3
- Close the dart. Enlarge the bra pattern to provide room for the bust mound.
- Choose the strap type desired; see next page.
- Test fit the bra cup (with or without padding). (Place “stay” at the side seam. See Figure 4 two pages ahead.)

Pattern Plot and Manipulation

Figure 1 Bikini Bra
- Trace the front Contour Guide Patterns. Use a push pin to transfer guidelines 6 (over-the-bust contour), 4 (under-the-bust contour), and 5 (between-the-bust contour). Connect guidelines to bust point.
- Remove ease from the side seam.
- Draw the bust circumference (example: 3 inches) and bra stylelines, using measurements given.

Figure 1

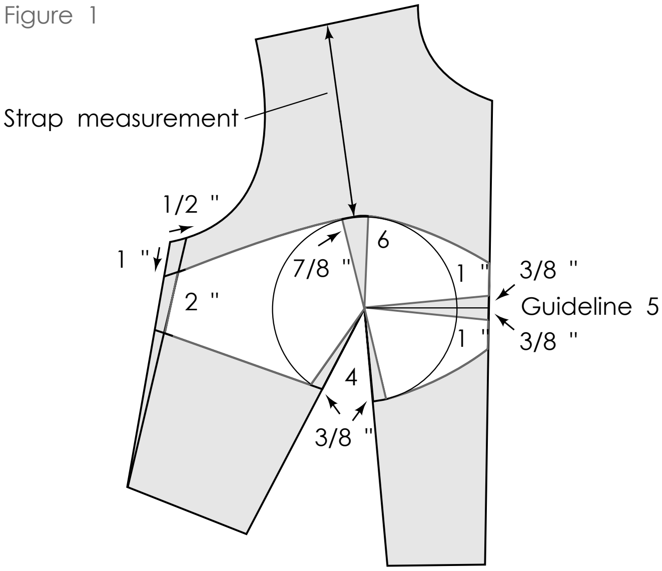


Figure 2

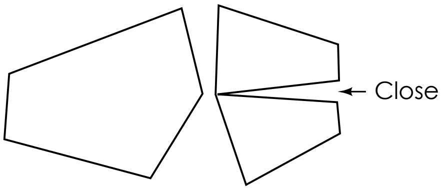


Figure 3

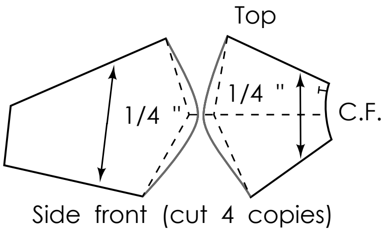
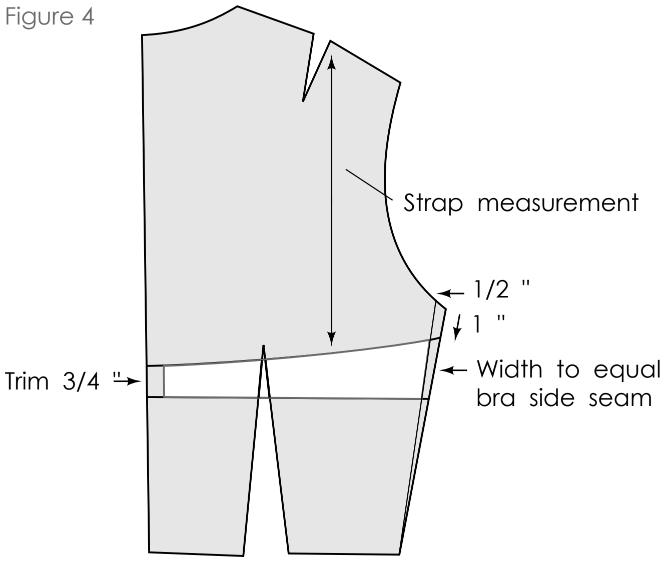


Figure 4 Back Strap

- Draw a strap, using the illustration as a guide. (The 3/4 inch removed from the center back eliminates dart excess.)

Figure 4



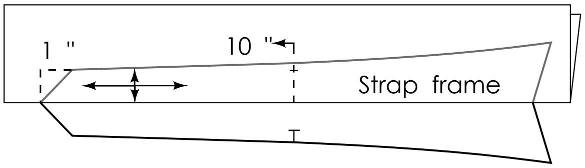
Strap Variations

Tie Strap

Figure 7

- Trace the strap frame on fold (full strap shown).
- Extend 10 inches and shape the tie end.
- Draw a grainline and add 1/4-inch seams. Cut from the paper.

Figure 7



Elastic and Hook Strap

Figure 9

Note: The closure requires a bra design with 1/2-inch-wide side seams.

- Draw a strip 1 1/2 inches × 12 inches (cut two).
- Cut two elastic strips 1/2 inch × 6 inches. (Stretch elastic when inserted between folds and stitch.)
- Fold the strap to make a loop and stitch. The other strap is folded over the hook and stitched. (The hook is inserted into the loop to secure the garment.)

Figure 5 Strap Frame (Base for Strap Variations)

- Cut strap from the pattern, retrace, and add seams.

Figure 5

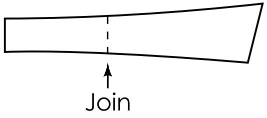
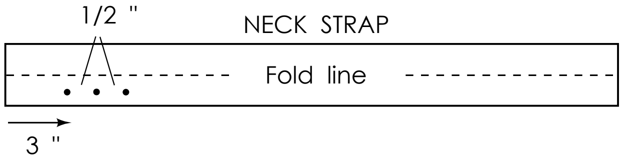


Figure 6 Neck Strap

- *Length:* Measure from the front bra to mid-shoulder to back strap and add 3 inches.
- *Width:* As desired (example: length, 20 inches; width, 2 inches; finishes to 3/4 inch).
- Mark a buttonhole 3 inches from the pattern. Space buttonholes as shown.

Figure 6



Button Control with Elastic

Figure 8

- Trace the strap frame on fold (full strap shown).
- Extend 2 1/2 inches. Mark 1 inch in from A (indicates center back). Mark 5 inches in from A. Label B.
- Mark buttonhole and the button placement.
- Cut two elastic strips 3/4 inch × 4 inches. (Elastic is attached at A and stretched to point B between the folds.)

Figure 8

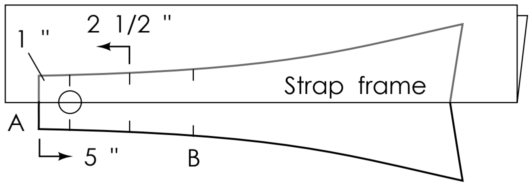
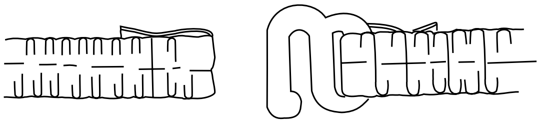


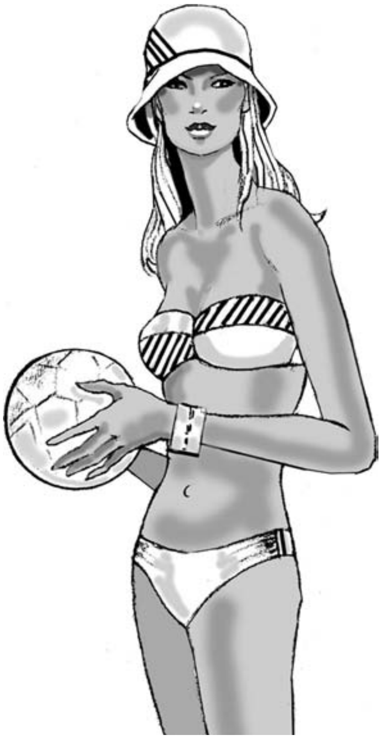
Figure 9



Bra Top with Horizontal Styleline

Design Analysis

The styleline of the bikini top crosses the bust points from the center front to the side seam. (Use personal measurements or those given.)



Pattern Plot and Manipulation

Figure 1

- Trace the front Contour Guide Pattern and include the bust point and bust circumference (example: 3-inch radius).
- Use push pins to transfer guidelines 6 (over-bust contour), 4 (under-bust contour); and 5 (contour between the bust).
- Draw a line 1/2 inch in from the side seam, ending at waist, to remove ease. Connect guidelines to the bust point.
- Square a line from center front to the side, touching the bust point.
- Draw the bra stylelines, using measurements given.

Figure 1

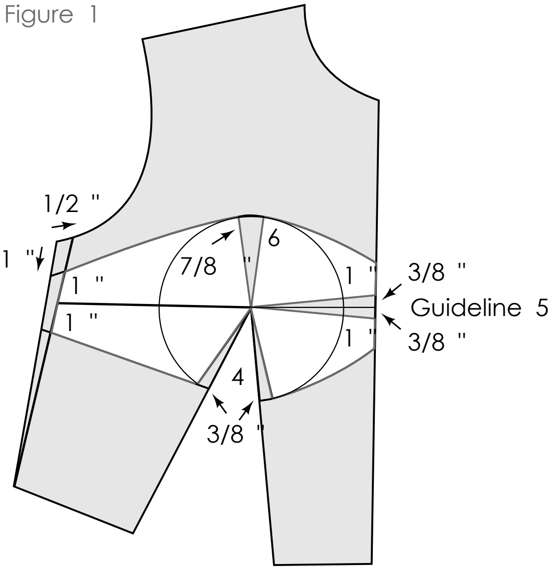


Figure 2

- Cut the bikini bra from the pattern.

Figure 2

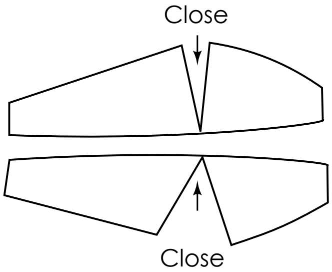


Figure 3

- Join the pattern sections. Enlarge the bra to provide room for the bust mound.
- Retrace, draw grainlines. Add seams (not shown). Cut from paper. Trace bra patterns for the lining.
- *Bra strap:* See the princess bikini top, Figure 6, previous page.
- *Back strap:* See previous page Figures 4 through 9.

Figure 3

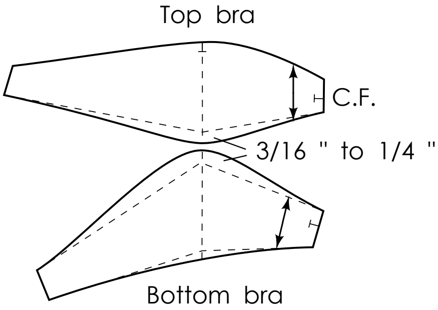


Figure 4

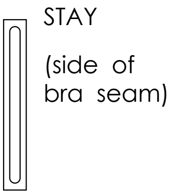


Figure 4

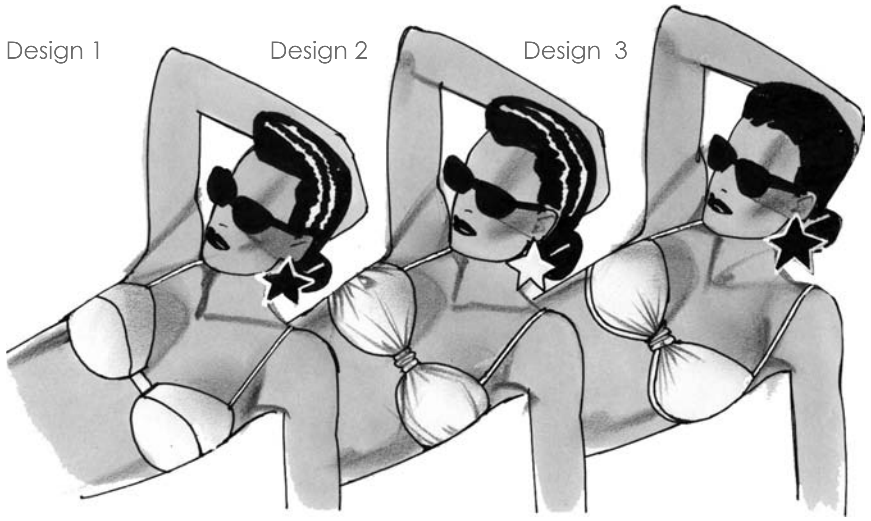
- *Stay:* support at the side seam of the bra.

Bra Tops for Bikini Bottoms

The bra top is also a fashion item that goes with pants and skirts. The bra can be cut in spandex or in cotton. However, when cut in cotton, add 3/8 inch to the pattern pieces (cotton does not stretch). Three different bra tops are illustrated.

Design Analysis: Design 1

Bust cups are connected with 3/4-inch elastic. It is covered with fabric. The underwire is wrapped into the finished edge of the seam allowance. See two pages back, Figures 4 and 5, for closures used with woven fabrics.



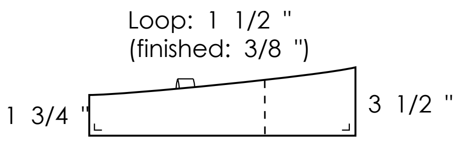
Figures 1, 2

- Trace the horizontal style bra pattern (previous page).
- Draw the bra, using the illustration as a guide for plotting the pattern. The curve of the bottom pattern should follow the underwire shape.
- The width at side of the top bra is 3 1/2 inches.

Figure 3 Back Strap

- Use the maillot pattern to develop the width and length of the back bra strap (see two pages back, Figure 4).
- Add 3/8 inch seams and cut from paper.

Figure 3



Loop

- Draw a loop tube 2 × 2 3/4 inches.
- Cut a 3/4-inch-wide elastic 1 inch long. The elastic is slipped through the loop and stitched to connect the bra cups.

Figure 1

Figure 2

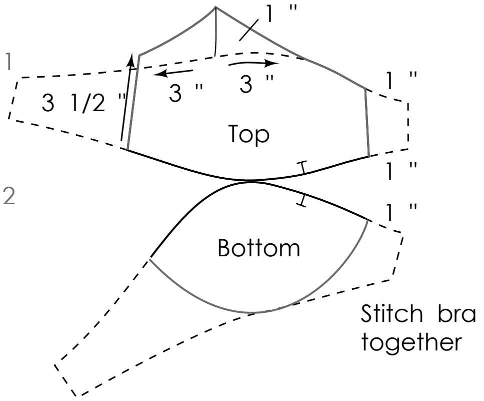
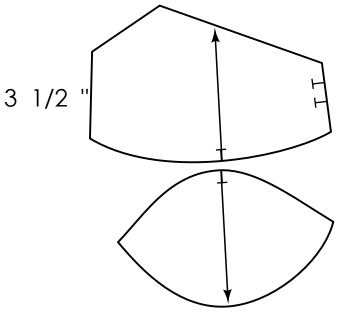


Figure 4

- Measure the strap length for tie around neck.
- Mark notches for elastic insertion. See two pages back, Figure 6, for guidance.

Figure 4



Figures 5a, b Finished Bra Top

- The underwire is stitched into the seam of the bra. The shape of the underwire is shown in Figure 5b.
- The sewing instruction for connecting the strap to the bra is two pages back, Figure 6.

Figure 5a

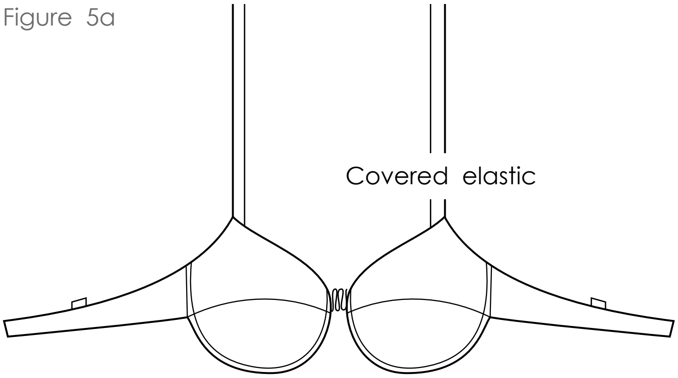
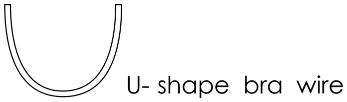


Figure 5 b



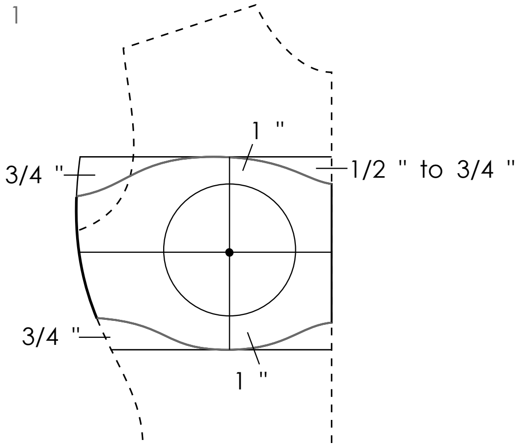
Design Analysis: Design 2

The bandeau is controlled at the center front with a loop and gather at the side seam. A strap across the back holds the garment to the figure. Cut the back strap on fold when cut in spandex. When cut in cotton or other woven fabrics, see three pages back for types of closures desired.

Figure 1

- Trace the upper maillot patterns.
- Plot the bra and back band, using the illustration as a guide.
- Cut the bandeau on fold.
- Add 3/8-inch seams.

Figure 1



1/4 " elastic for top and bottom of bra and strap

Figure 2

- Use back maillot pattern to develop the back strap.

Figure 2

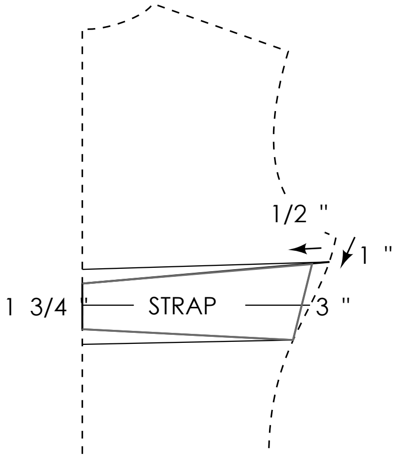
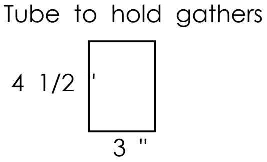


Figure 3 Loop

- Draw the loop tube as illustrated.
- See three pages back for closures if the bra is cut in a woven fabric.

Figure 3

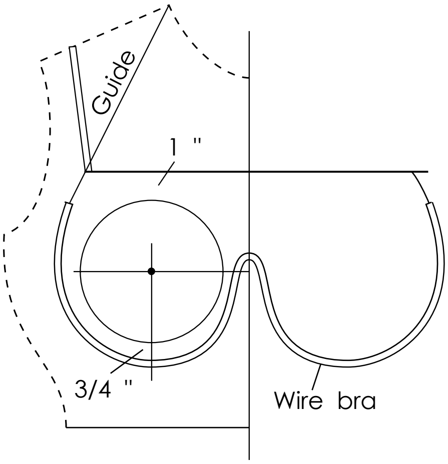


Design Analysis: Design 3

The center front is gathered and controlled to a wire bra by a band.

Figure 1
- Trace the upper part of the maillot pattern.
- Place underwire on the pattern and trace its shape. Use the illustration as a guide for plotting the design.

Figure 1



Trace wire bra on pattern

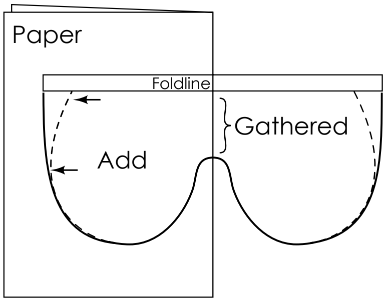
Binding is used around the wire (cleans seams)

Figure 2

Developing the Bra Cup
- Trace the wire bra shape on fold. Add for bust room and 3/8-inch seam allowance.

Back Band
- Trace back maillot pattern and develop the back band pattern. (See Maillot Foundation section earlier in this chapter for drafting instructions.)
- Refer back to section enclosures if the bra is cut in a woven fabric.
- Draw a tube tie 3 1/2 × 4 inches.
- Complete the pattern for a test fit.

Figure 2



String-a-Long Bikini Top

Design Analysis

The bikini top is shaped like a triangle. Straps attached to the bra tie at the back neck with a spaghetti strap pulled through folded-hemline casing and tied in the back. Top is gathered under the bust and is self-faced or lined.

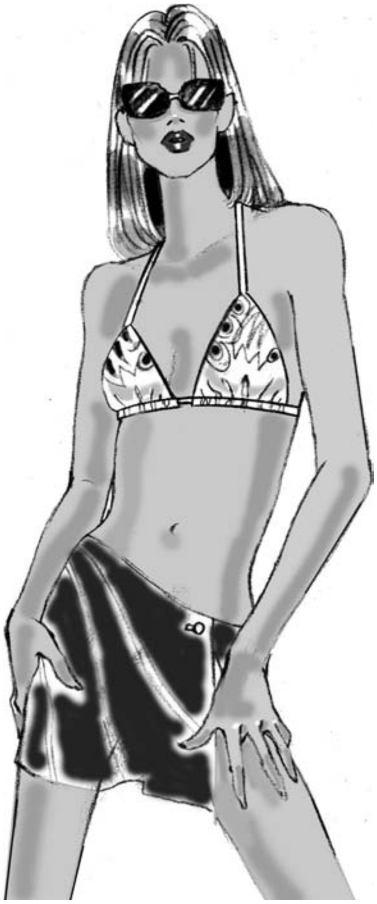


Figure 2

- Blend across the open dart.
- Draw a grainline. Add 1/2 inch for fold-back. All other seams are 3/8-inch. Cut from paper.
- Trace the pattern for the lining.

Bra to neck strap: Cut two pieces 1 inch × 18 inches (ties attached to bra top). See Attaching Straps to Swimsuit, Figure 6, later in this chapter. Do not include buttonholes.

Pull-through strap: 1 inch × 40 inches (tie is pulled through the casing at hem of bra and tied in back).

Casing guide: After lining is stitched.

Pattern Plot and Manipulation

Figure 1

- Trace the front Contour Guide Pattern.
- Square out 1/4 inch below the bust. Label A and B 1 inch in from the side seam.
- Draw a guideline from bust point to neck corner.
- Mark 5 inches up from bust point on the guide and square out 1/4 inch on each side.
- Draw lines to A and B.
- Draw an inward curve 1/8 inch from bust circumference.

Figure 1

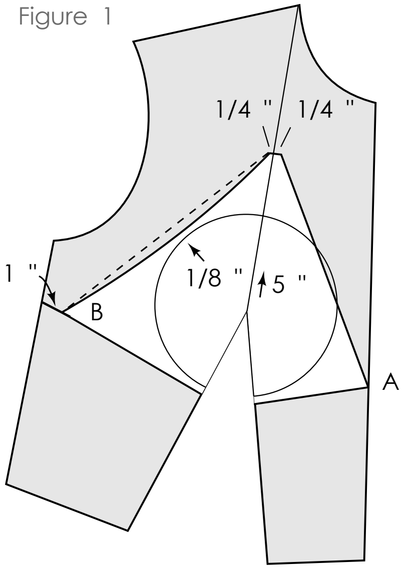
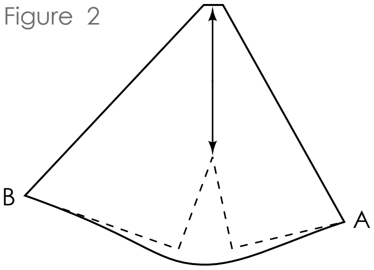


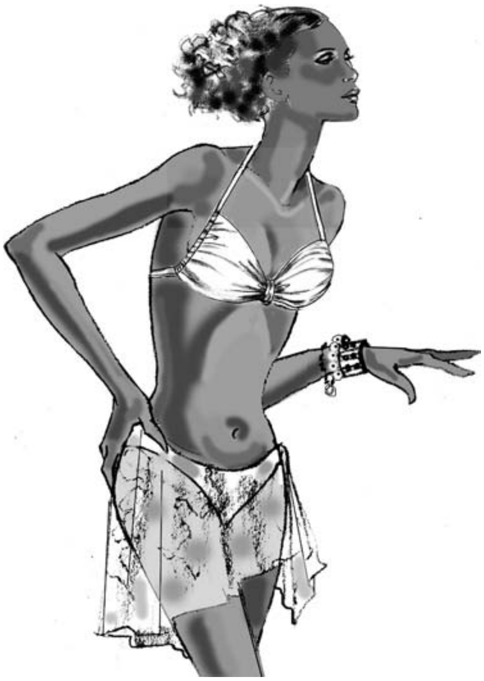
Figure 2



Bandeau Bikini Top

Design Analysis

The bandeau-effect bikini top is supported by a spaghetti strap pulled through a fold-back (casing) at the sides. The strap goes around the neck and ties in back.



Pattern Plot and Manipulation

Figure 1

- Trace the front Contour Guide Pattern.
- Square a line from center front, 1/4 inch above the top, and 1/4 inch below the bottom and 1/2 inch out from the side of the circumference line.
- Measure in 1 inch where shown.

  Mark.
- Draw curved lines touching the mark.
- Cut the bandeau from the pattern.

Figure 1

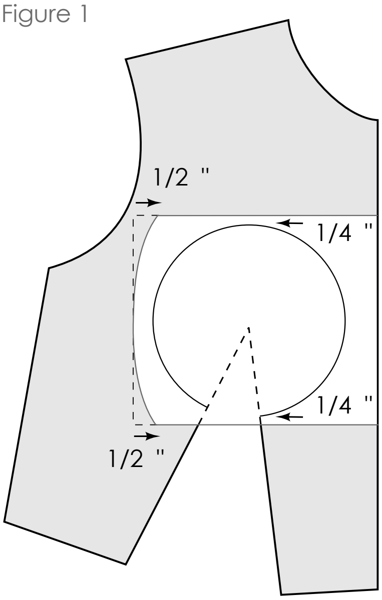
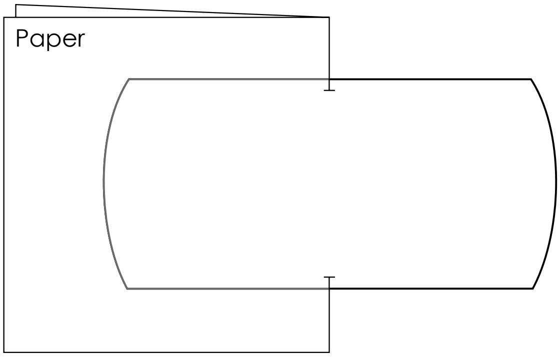


Figure 2

- Retrace on the fold.
- Draw the grainlines (straight or bias). Add 1/2 inch for fold-back (casing). All other seams are 3/8 inch.
- Cut bias strap: 1 inch × 60 inches.
- Cut from paper and trace the pattern for a lining, if desired.

Figure 2



LITTLE-BOY LEGLINE FOUNDATION

The little-boy legline foundation is developed from the slack jumpsuit.

Little-Boy Draft

Figures 1, 2

- Trace front and back slack jumpsuit to 1 1/2 inches below crotch point on inseam of the front and back. Draw a blending line to the side seam at crotch level, or draw a legline parallel with crotch level for a modest cut (broken lines).
- From crotch point, measure up 2 1/2 inches along the crotch curve. Mark and draw a slash line to the legline, as shown.

Figure 1

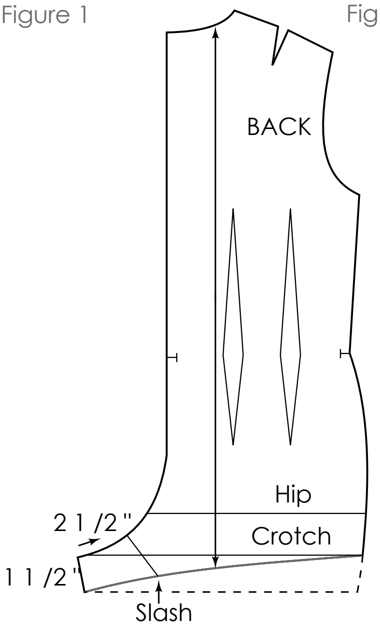
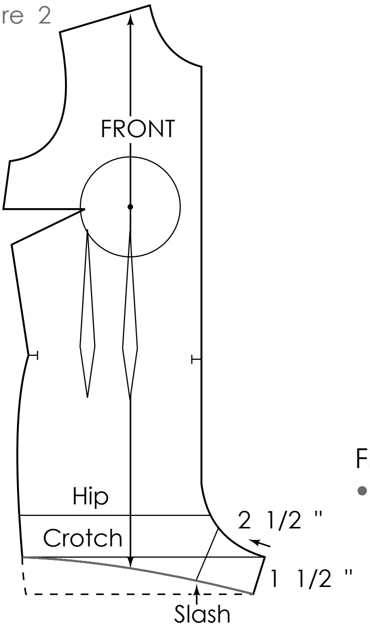

BACK
Hip
Crotch
2 1 /2"
1 1 /2"
Slash

Figure 2


FRONT
Hip
Crotch
2 1/2 "
1 1/2 "
Slash

Figures 3, 4

- Cut a slash line to, not through, crotch curve.
- Overlap 1/2 inch and tape (tightens the legline).

Figure 3

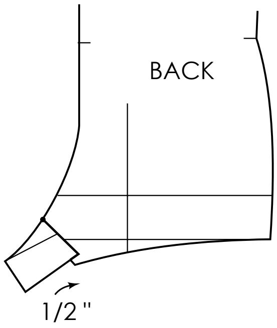
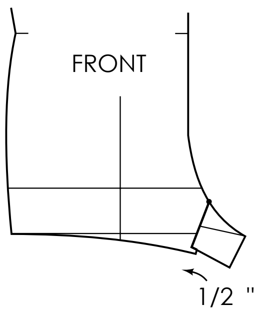


Figure 4



Figures 5, 6

- Raise the crotch point 1/4 inch.
- Measure in 3/8 inch at side seams.
- Blend the leg and crotch areas.

Figure 5

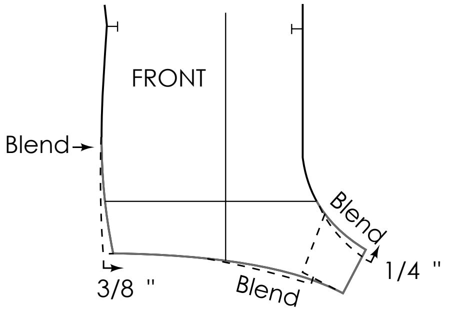
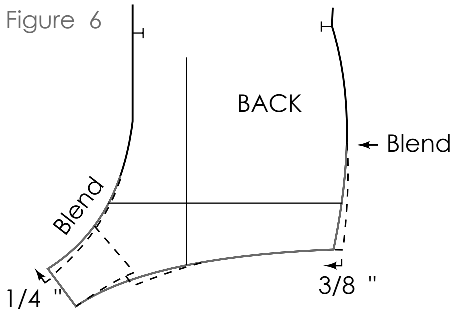

FRONT
Blend
Blend
3/8 "
Blend
1/4 "

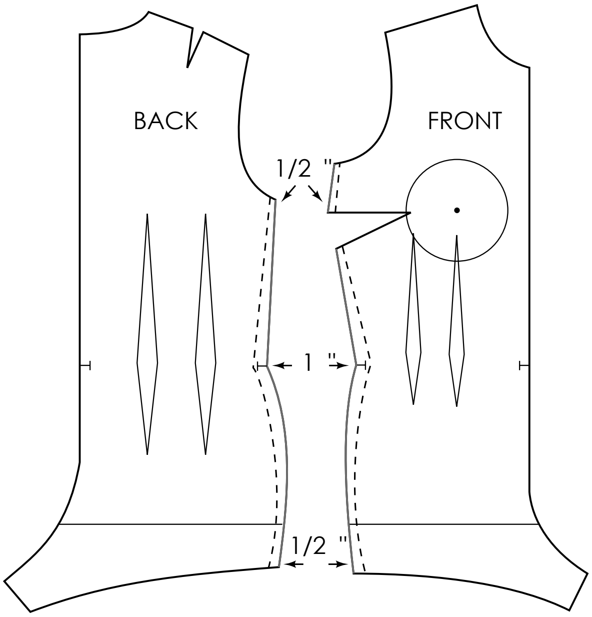
Figure 6


BACK
Blend
Blend
1/4 "
3/8 "

Figures 7, 8

- Figures show completed foundation. If cut in a stable knit, remove 1/2 inch from the sides and 1 inch from the waist.

Figure 7 Figure 8


BACK
FRONT
1/2 "
1 "
1/2 "

Little-Boy Legline Variations

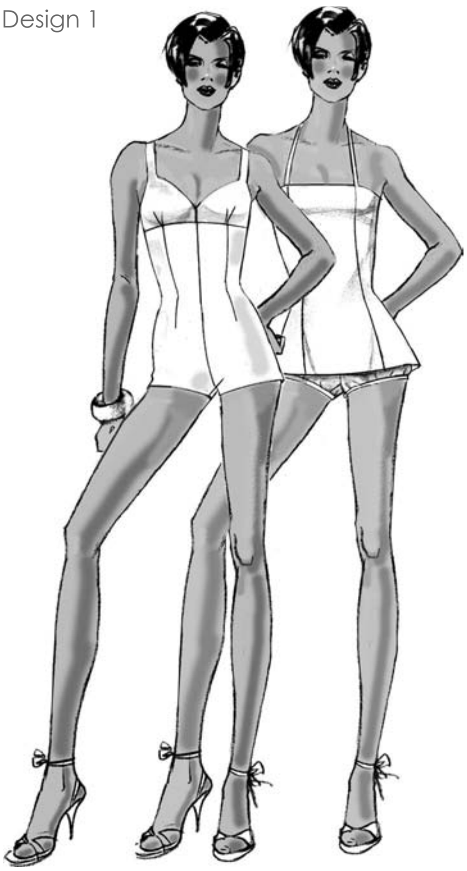
The designs that follow show the versatility of this foundation. The foundation can also be used to develop tennis suits and sunsuits. Design 1 features a little-boy slit legline, whereas Design 2 features a princess-line overdress, to which is attached an underframe to control fit. The legline is gathered and used as bloomers. Design 1 is illustrated. Design 2 is a practice problem.

Little-Boy Draft

Design Analysis

The little-boy legline (Design 1) is cut in cotton and lined. It features an empire cut with stylized neckline and lowered back. The bra section (bust cups are optional) has folded darts that point away from the bust point. The legline is slit. Darts in front and back control fit. Straps have button adjustments.

Design 1 Design 2



Pattern Plot and Manipulation

Figures 1, 2

- Trace the front and back Contour Guide Patterns.
- Mark the bust point and draw bust circumference (example: 3-inch radius).
- Use a push pin to transfer guidelines 6 (over-bust contour), 4 (under-bust contour), and 5 (contour between the bust). Connect guidelines to the bust point.
- Use personal measurements or those given.
- Plot the styleline as illustrated (one dart front and back).
- Continue the dart intake (of lower section), ending at the waist dart (shaded area of front pattern).
- Transfer one-half of the remaining front and back darts' excess to center front and back at the sides.
- Remove an additional 1/2 inch at center back, blending to zero at crotch for a tighter fit.
- Cut and separate the pattern. Cut slash lines to bust point.

Figure 1

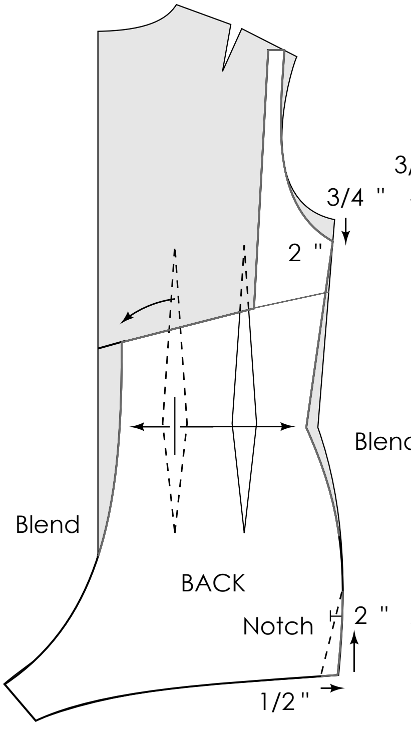


Figure 2

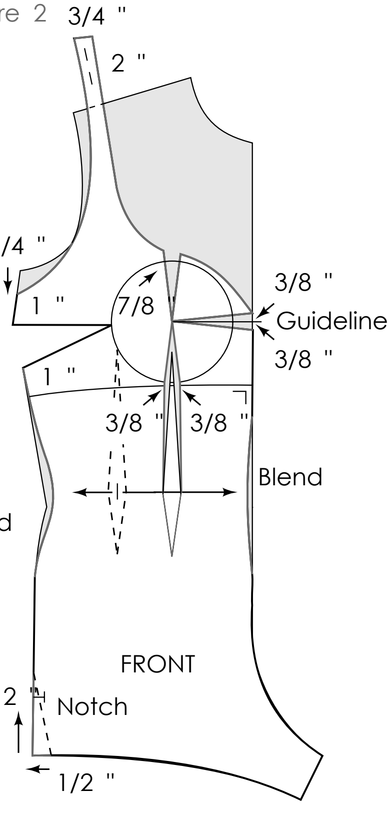
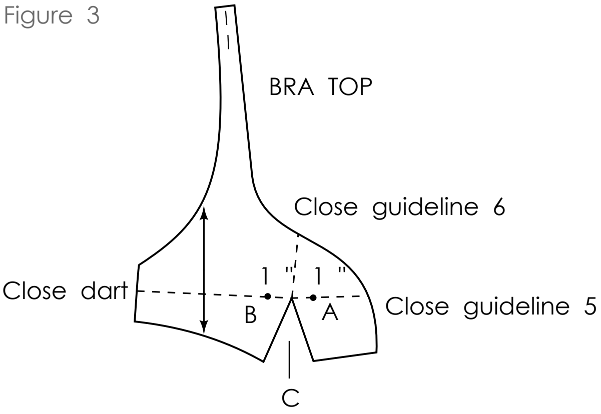


Figure 3 Bra Top

- Close the side dart and guidelines 6 and 5. Retrace.
- Mark 1 inch from each side of bust point (new dart points). Label A and B. Mark center of the open dart. Label C.

Figure 3


BRA TOP
Close guideline 6
Close dart
1 "
1 "
B
A
Close guideline 5
C

Figures 4a, b

- Cup the pattern and crease-fold dart legs to point C. Direct dart points to marks A and B (Figure 4a). Use a tracing wheel to transfer the styleline to folded darts underneath. Unfold and pencil in perforated lines. (See Figure 4b for dart shape.)
- Draw a grainline.
- For bra cup information, see Bra Frame 2, Figures 1, 2, 3, and 4, later in this chapter.

Figure 4a

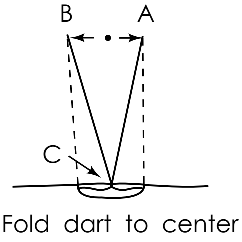
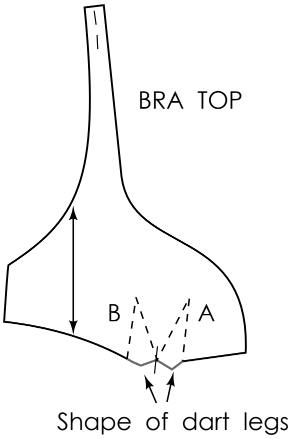

B
A
C
Fold dart to center

Figure 4b


BRA TOP
B
A
Shape of dart legs

Figures 5, 6

- Trace the patterns for the lining. For the facing, draw a line 1 inch above legline, as indicated by broken lines. Trace the facing shape to paper.
- Add seams. Punch and circle darts, as shown.

Figure 5

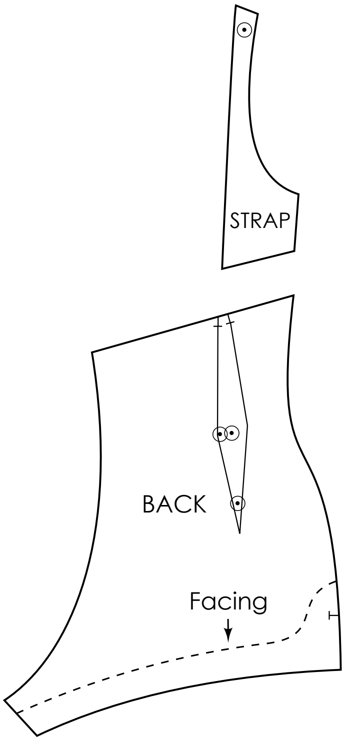
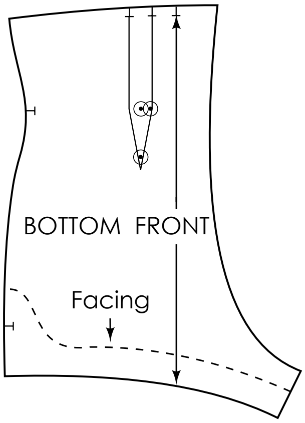

STRAP
BACK
Facing

Figure 6


BOTTOM FRONT
Facing

FULL-FIGURE SWIM FOUNDATION

The full-figure foundation is used for swimwear garments cut in woven fabrics or knits such as latex and spandex. When cut in knit, the pattern is modified. Darts are needed to control the fit of the garment through the waist and bust areas, and bra cups give extra support for the bust. A traced copy should be used to develop design patterns from this foundation. The pattern is seamless.

Full-Figure Swim Draft

Measurement Needed

- Crotch length (28)_______________.

Patterns Needed

- Torso front and back patterns, with legline instructions from the leotard draft.

Pattern Plot and Manipulation

Figure 1

- Trace the torso front patterns.
- Mark the bust point and bust circumference. Use a push pin to transfer guidelines 6 (over-bust contour), 4 (under-bust contour), and 5 (contour between the bust). Connect guidelines to bust point.
- Measure out 1/4 inch at front hip. Draw a new hipline for front and back torso, ending at the waist (broken line indicates original hipline).
- Label the center front waist A.
- *Use the instructions given for the leotard draft. Use 1/2 inch for reduction of the crotch length and hip area.*
- After the legline is complete, cut the pattern from the paper.

Figure 2 Back Foundation

- Trace the back torso.
- Place the front on top of the torso back, matching hip levels and center front and back.
- Trace the back legline. Remove pattern and cut the back from paper.

Figure 3 Front Foundation

- Trim to the front legline.

Figure 1

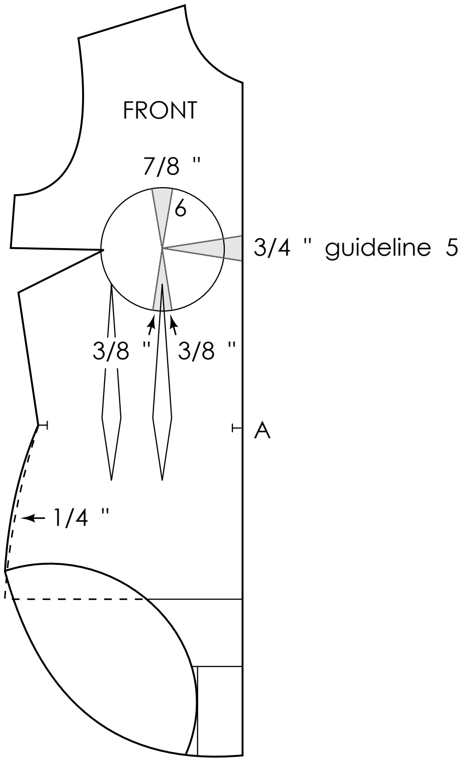


Figure 2

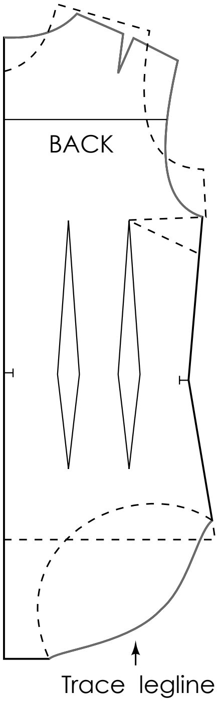
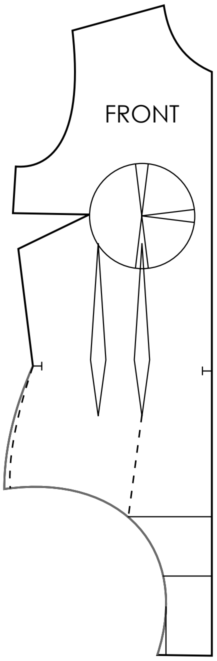


Figure 3



Figures 4, 5 Leglines for Skirted Swimwear

- Square out from center front and center back at hip (A) and crotch (B) equal to hip measurement. Label C. Square up from C to the side hip.
- Draw the legline as shown (broken line indicates original legline).

Figure 4

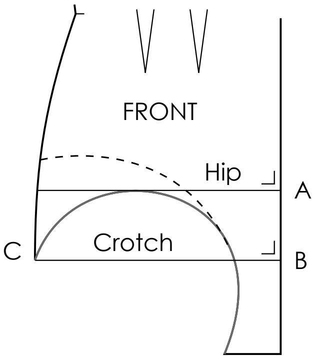
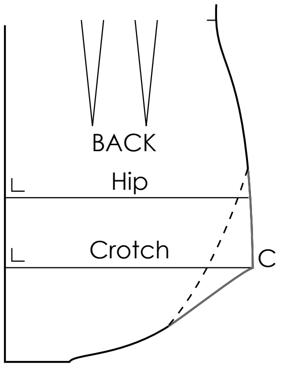


Figure 5



Reduction of the Full-Figure Foundation

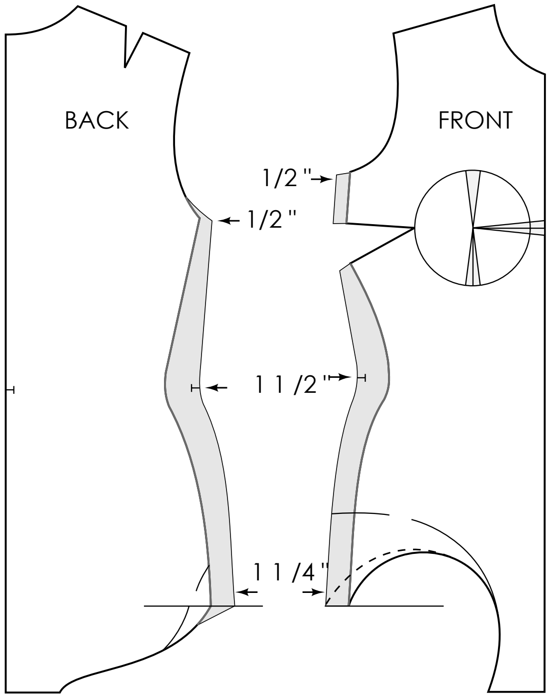
Use reduction instructions when cutting in firm knits.

Figures 6, 7

- Trace the front and back patterns.
- Measure in 1 /2 inch at the side and at the armhole.
- Measure in 1 1/2 inches at the waist.
- Measure in 1 1/4 inches at the side leg.
- Draw a blending line for the new side seam (shaded area to be discarded).

Figure 6

Figure 7



Swimsuit with Skirt Front

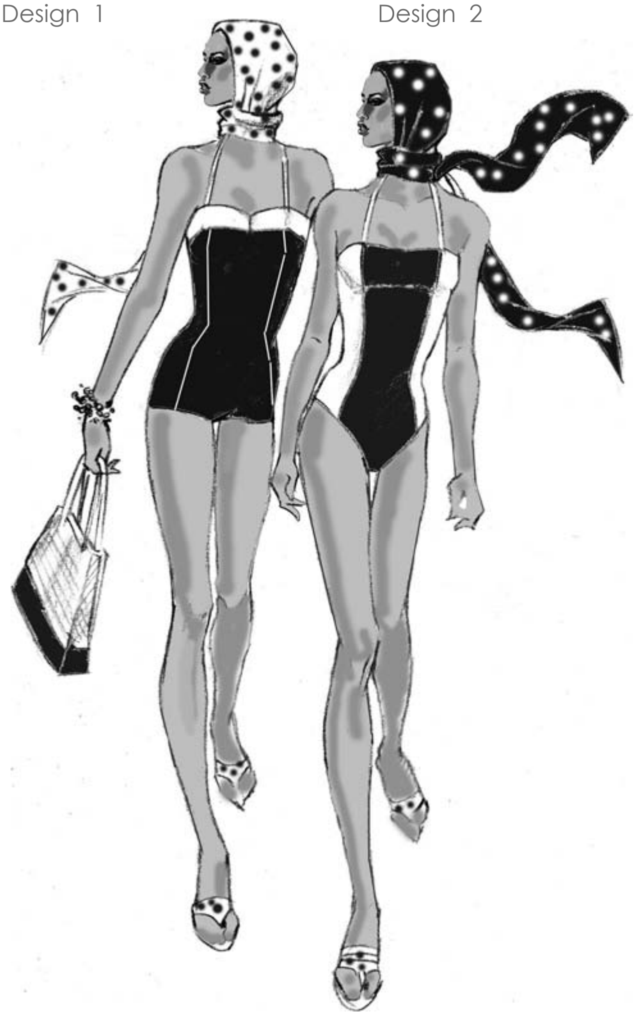
Design 1 is cut in spandex and is based on the full-figure swim foundation. The traced pattern should be reduced for stretch before the pattern is developed, using instructions given for Figures 6 and 7. *Remember:* The width of the pattern should lie on the fabric in the direction of the greatest stretch. Design 2 is given as a practice problem.

Design Analysis

The empire cut, with styleline of the bra crossing bust points, has spaghetti straps that tie in back. The bra top is supported by bra cups, and the lower skirted section covers the legline. The underneath section is lined in tricot or power knit, while the crotch section (visible on the right side of garment) is self-lined.

Design 1

Design 2



Pattern Plot and Manipulation

Figures 1, 2

- Trace the modified front and back full-figure foundation and include all markings. *Use instructions for the modified legline* for skirted designs.
- Use personal measurements for contouring or those given.
- Draw stylelines, using the illustration and measurements as a guide.

Note: Trim front bottom section at the side equal to dart intake so that patterns will true when joined together along the empire styleline.

- Cut and separate the patterns.

Figure 1

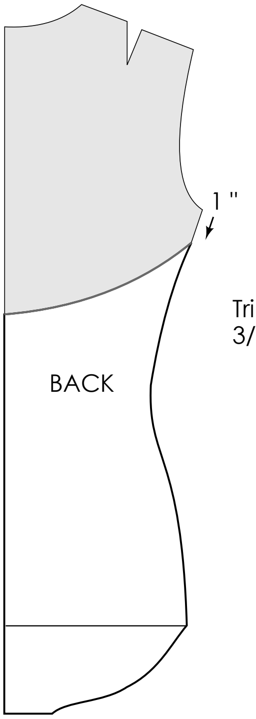
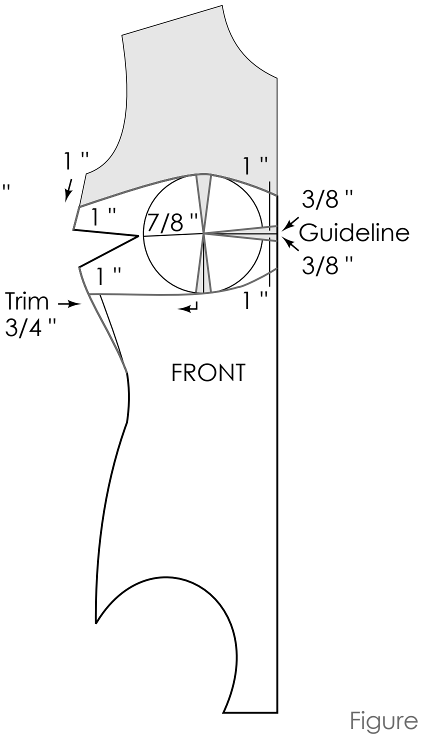


Figure 2



Note: For elastic and bra cup instructions see next three pages.

Figures 3, 4, 5, 6

Bra Top

- Join sections and blend as shown. (Broken lines indicate original pattern.) Retrace (Figure 3).
- Trace the patterns with the front cut on the fold (Figures 4 and 5).

Skirt Pattern

- Trace the front lower section on fold and square from center front at crotch level to the side (when adding seams, add 1 inch to hem for attachment of 1-inch-wide elastic cut to skirt pattern width) (Figure 6).
- Add seams and cut from paper.

Straps (Not Illustrated)

- Cut a bias strip 1 inch × 36 inches. Cut in half to make two straps (see Attaching Straps to Swimsuit section later in this chapter.)

Figure 3

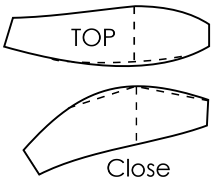


Figure 4

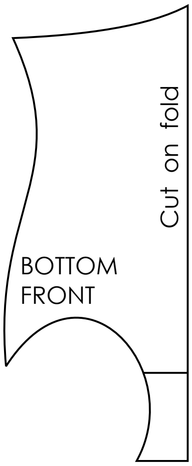


Figure 5

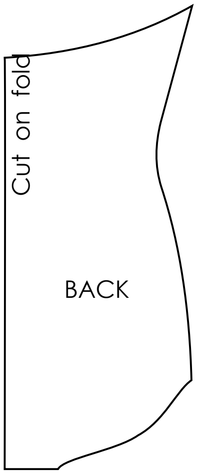
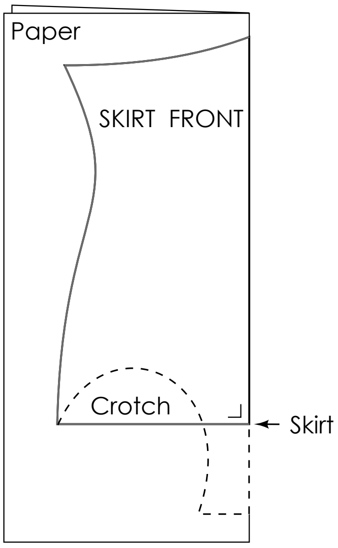


Figure 6



SUPPLIES AND SPECIAL INFORMATION

The following general information and illustrations should be used to complete patterns for activewear garments. Also included is special information relating to the garment construction for use wherever appropriate. Supplies needed include:

- *Needles:* Use ball point, sizes 9 to 11, and 10 to 12 stitches per inch.
- *Thread:* Corespun (nylon or polyester) or cotton.
- *Bra cups, with or without power-knit frame:* Purchase at fabric stores, notions counter, or supply houses catering to manufacturers of mass-produced garments.
- *Power knit or nylon tricot:* For bra cup frames and crotch or swimsuit lining.
- *Elastic:* 1/4 inch (3/8 inch is easier for beginners to handle). For the bra frame, use 1/4-inch lace elastic and, where appropriate, 1/2-inch felt-back elastic, if available. Use 1-inch elastic for skirted-front swimsuits.

Use of Elastic

Elastic is attached to all raw edges of the garment, whether cut in rigid or knit fabrics, except where seams are joined together or faced. Elastic helps the garment cling to the figure, especially where stylelines cross the hollows of the body—above, below, or between the bust mounds; under the buttocks; and where cutouts cross through a part of the waistline. It is also used around lowered waistlines of the bikini pant.

Elastic Guidelines

An elastic ratio of 1:1, as given in the examples, means that when the elastic is attached, it is not stretched. Elastic is attached to the garment with a zigzag, overlock, or straight stitch. The elastic is placed on the wrong side of the garment (see shaded areas, Figures 1 and 3), stitched, folded over, and restitched. It should be stretched evenly while being stitched.

Elastic Measurements

Figures 1, 2, 3

- *Front neckline:* Cut elastic 1 inch less than neckline.
- *Back neckline:* Cut elastic, using 1:1 ratio.
- *Cutout armholes:* Cut elastic 1/2 inch less than armhole. Use 1:1 ratio for regular armhole.
- *Legline:* Cut elastic 1 1/2 inches less than the front and back legline (1/2 inch used for overlap). Stretch the elastic across the back and continue 1 1/2 inches past crotch seam of the front leg. Use 1:1 ratio on the remaining front legline.

Figure 1

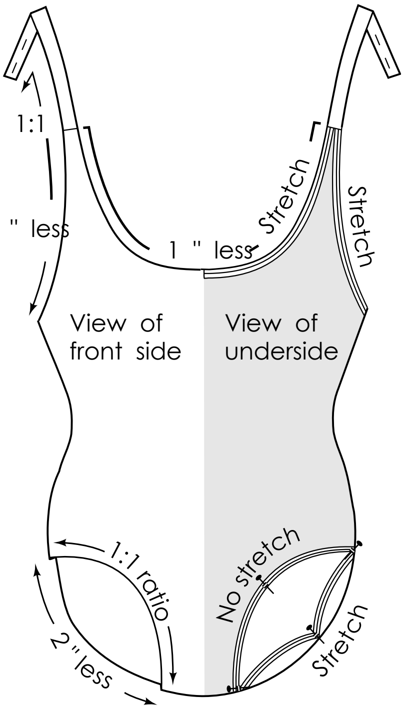


Figure 2

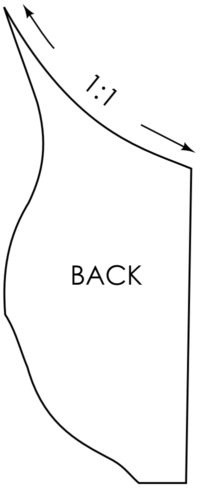


Figure 3

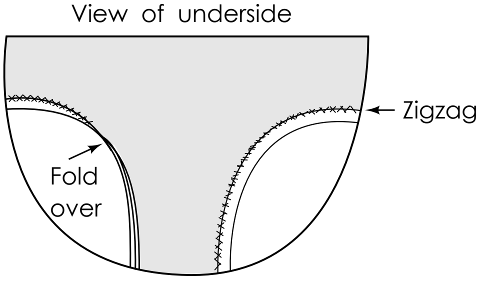


Figure 4

- *Cutout waist:* Cut elastic 1 inch less than length of the style cut, stretching 1/2 inch under the bust and 1/2 inch along the remaining styleline.
- *Straps:* Cut the elastic using a 1:1 ratio.

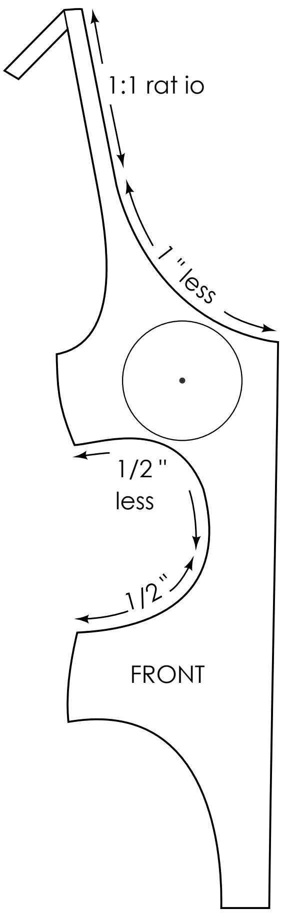


Figure 4
1:1 ratio
1" less
1/2" less
1/2"
FRONT

Figure 5

- *Bikini:* Cut elastic 1 1/2 inches less than the total waist.

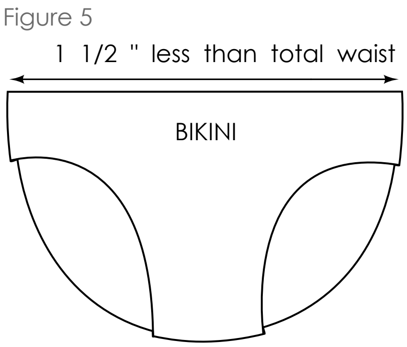


Figure 5
1 1/2" less than total waist
BIKINI

Finishing Crotch and Shoulder

Crotch Lining Pattern

Figure 1

- Trace the front pattern from the crotch to approximately 6 inches up (1 inch past crotch level).
- Remove the pattern. Draw a curved line to the leg, as shown.

Figure 2

- Cut from the paper, place on fold, and retrace (full pattern shown).
- Cut in self-fabric or nylon tricot.
- Place on the underside of the garment and stitch in with the legline elastic.

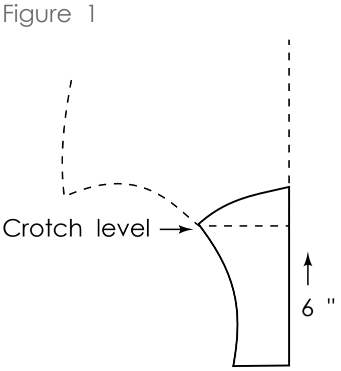


Figure 1
Crotch level
6"

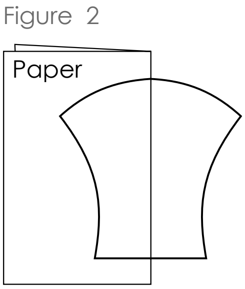


Figure 2
Paper

Shoulder Tape

Figure 3

- Cut tape equal to the shoulder length of the pattern. Use along the shoulderline of bodysuits and leotards to prevent stretching.

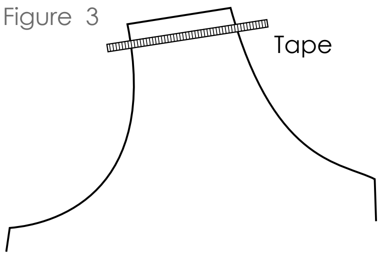


Figure 3
Tape

Bra Cups for Swimwear

Two types of bra frames are illustrated. Instructions are given for attaching each to the garment. Bra frame 1 should be used for garments *without* stylelines crossing under the bust mound (example: the empire styleline). The bra cup is attached to a frame that hangs free of the garment, except at the top and sides. Bra frame 2 is used for garments *with* stylelines crossing under the bust. A free-hanging frame can also be used. The complete frame is attached to the garment.

Bra Frame 1

Figure 1

Measurement Needed

(10) Bust span _______________.

- Cut power knit, nylon tricot, or self-fabric equal to the length and width of the pattern from the strap to just under the bust level, plus 2 inches.
- Draw a chalk line through the center and a horizontal line 4 inches up from the bottom.
- Locate bust points on the horizontal line (out from center) and mark.
- Place bra cups on the fabric, aligning bust points of the bra cup with bust marks. Pin cups to the fabric, trace, and remove.

Figure 1

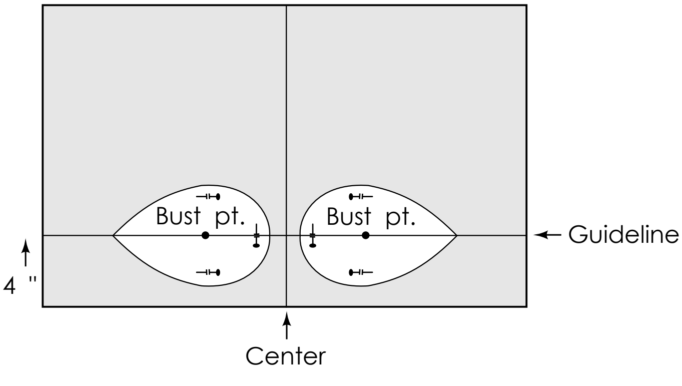


Figure 2

- Trim excess to within 1/2 inch from around the bra cups. Place on the form or figure and adjust cup position, if necessary. Stitch around edge of the bra cups (see Figure 3).

Figure 2

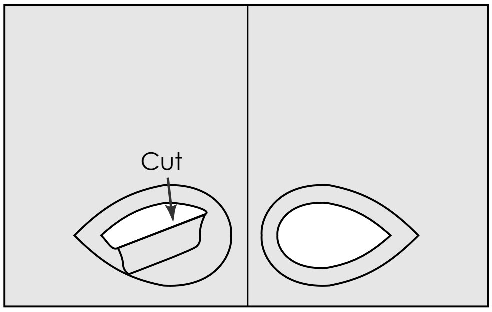
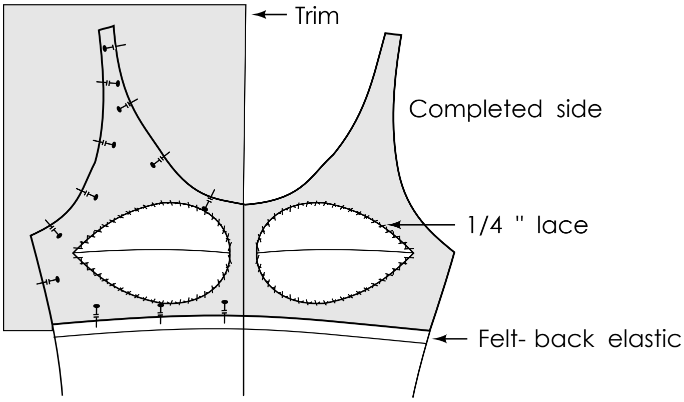


Figure 3 Bra Cup Attachment Guidelines

- Attach 1/4-inch lace elastic on the stitchline around bra cups on the underside of the garment.
- Cut 1/2-inch-wide elastic (felt-back) 1/2 inch less than width of the pattern. Attach along bottom of the frame just under the bust level, stretching evenly. Trim excess to bottom of the elastic.
- Pin or stitch bra frame to wrong side of the garment and attach with elastic to the garment. Stitch with elastic to garment with a zigzag or straight stitch. Trim excess.

Figure 3



Bra Frame 2

Figure 1

- Trace the pattern of the bodice front (section for bra insert).
- Cut in fabric and stitch. (Bra with empire styleline is shown as the example.)

Figure 1

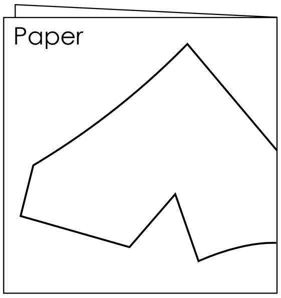


Figure 2

- Place stitched empire frame on form or figure. Put bra cups over the fabric and the bust mound. Pin in place on the fabric.
- Pencil in the cup outline.
- Remove bust cups from the garment. Remove top from the form.

Figure 2

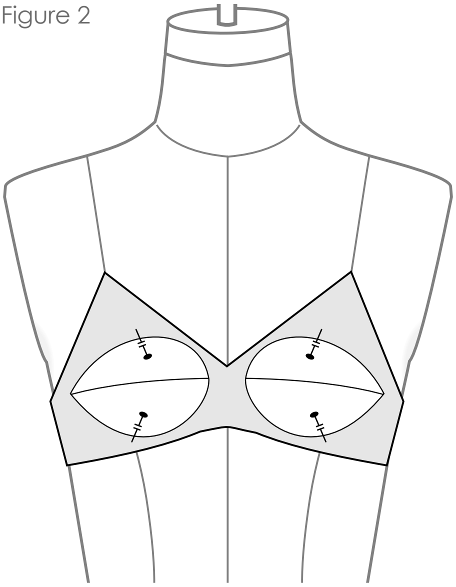
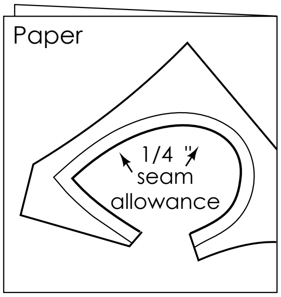


Figure 3

- Remove the dart stitches from the frame and trace pattern on fold, transferring penciled outline of the bra cup. Allow 1/4 inch for attaching the bra cups. Cut from paper.
- Cut in power knit, nylon tricot, or self-fabric.
- Stitch the frame seams together. Follow instructions for the bra cut attachment for bra cup 1. Felt-back elastic can be attached along the styleline for comfort.

Figure 3

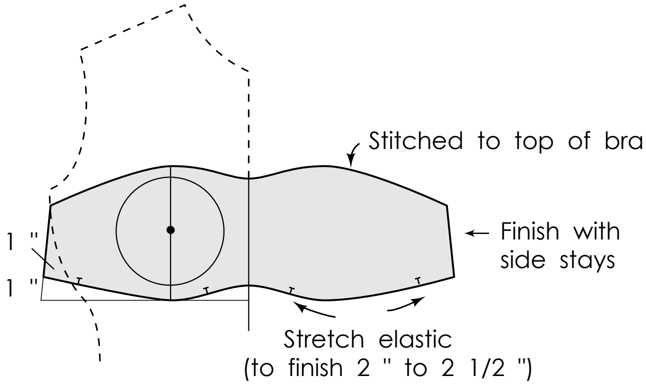


Bra Frame 3: Bra Free Hanging Lining

Figure 1

- Trace the top part of the design bra.
- Square a line from center front, crossing 1/2 inch below bust arc.
- Mark side seam width according to the design.
- Measure out 1 inch and draw the under-bust curve.
- Follow instructions given in the illustration.
- The lining is stitched into the top with elastic (if elastic is used).
- Notches are marked 1 inch in from the front and side for fullness under the bust.

Figure 1



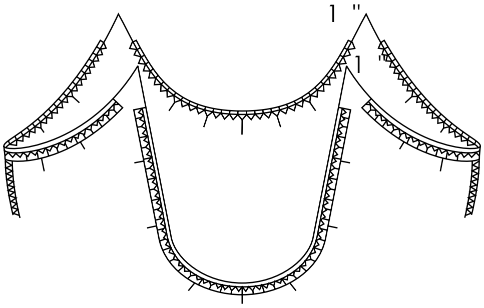
Attaching Straps to Swimsuit

The following instructions apply to both swimsuits and bra tops.

Figure 1

- Mark 1 inch from strap points on front and back swimsuit.
- Start zigzag stitch from the marks, with elastic applied to the wrong side. Include the bra lining with this process.

Figure 1



Figures 2a, b Strap

- Fold the strap with right sides together. Stitch using 3/8-inch seams.
- Turn right-side-out (not illustrated).
- Attach the strap to the garment.
- Peel back the bra lining and slip the strap through. Pin the strap so that it is centered.
- Stitch across to hold (Figure 2a).
- Trim the point to within 1/8 to 3/16 inch from cross stitch (Figure 2b).
- Pull the strap through and turn garment to the right side. A stitch across the strap area enforces and strengthens the pull on the strap (not illustrated).

Figure 2a

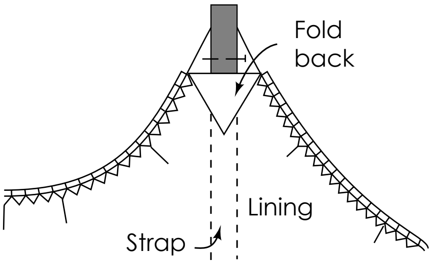
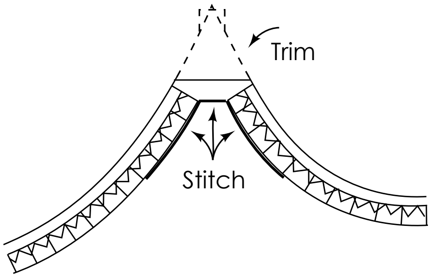


Figure 2b



FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

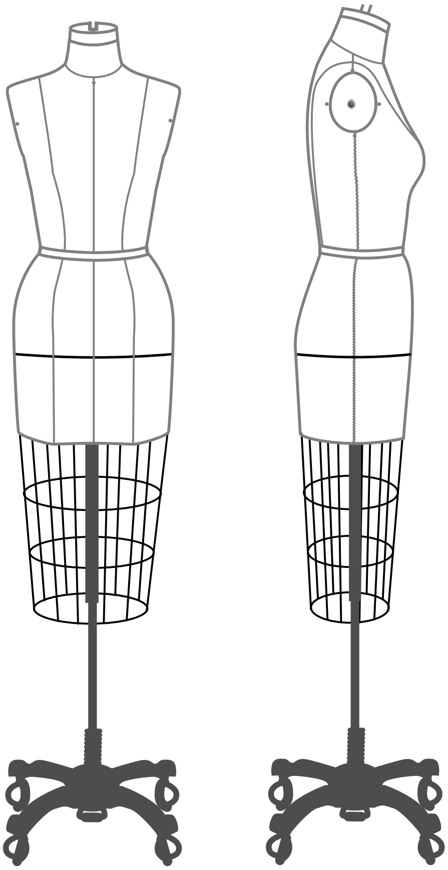
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____
2. Waist: _____
3. Abdomen: _____
4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____ B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
    Front = 1" (2 darts 1/2 to 5/8")
    Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

*Measuring the Arm

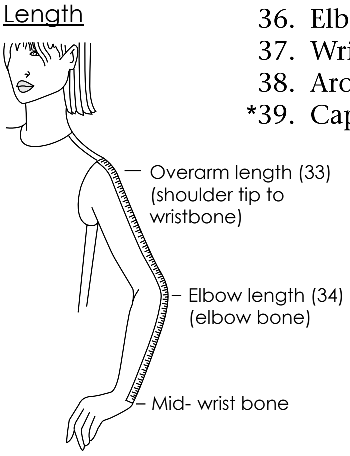
Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

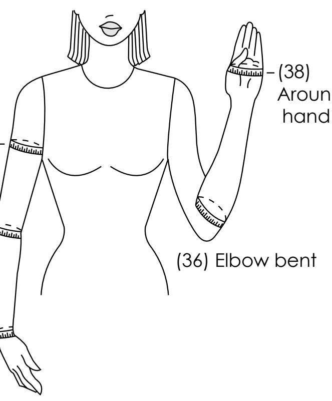
Personal Figure Variations

A. Head height relationship:
   Bust _____ Waist _____
   Crotch _____ Knee _____
B. Bust/back/chest relationship:
   Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
   Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
   Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
   Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
   Front: _____ Back: _____
M. Bust/waist = _____
   Waist/hip = _____
   Bust/hip = _____
N. Other variations: _____

Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____


Length
Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone


Circumference
(38) Around hand
(35) Biceps
(36) Elbow straight
(36) Elbow bent
(37) Wrist

This page intentionally left blank

Introduction to Childrenswear

From Chapter 31 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

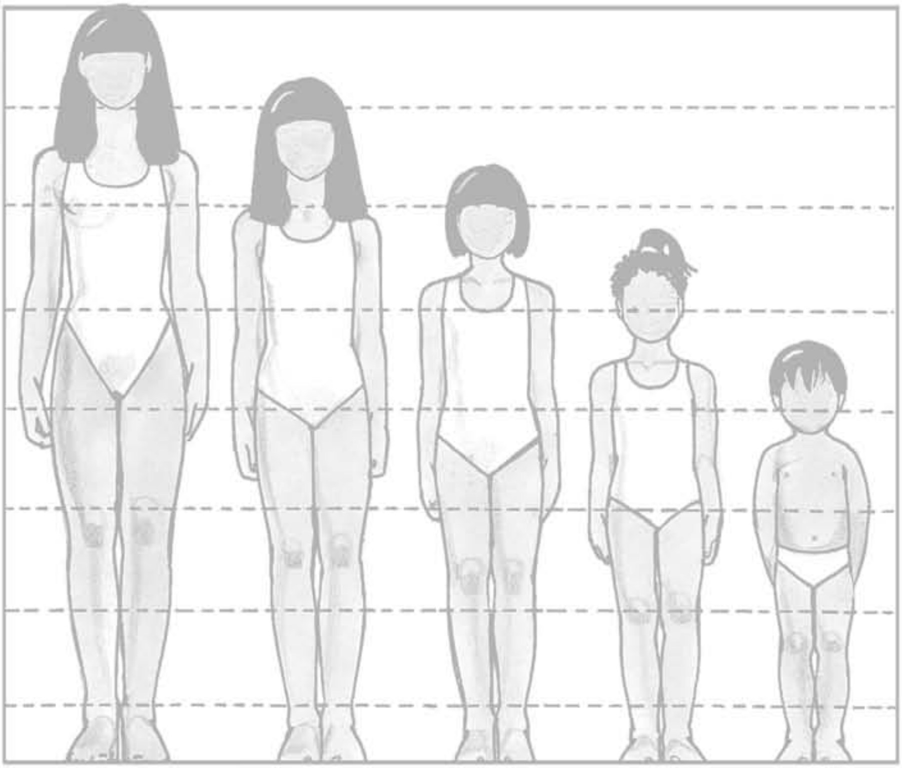
Introduction to Childrenswear

- Childrenswear Challenges
- Color and Functional Clothing
- Representative Sizes
- Size Grouping
- Observable Differences

SIZE CATEGORIES FOR CHILDRENSWEAR
- Infants or Babies
- Toddlers
- Children
- Boys and Girls (Preteen)
- Young Juniors
- Juniors

SIZING METHODS
- Alternate Sizing

SOURCES OF INSPIRATION
- Children’s Fashion References



Childrenswear Challenges

Creating childrenswear offers some new challenges to the designer and patternmaker. Comfort, which reflects good fit, proportion, and function, is nowhere more important than in the creation of childrenswear. While adults are sometimes willing to sacrifice comfort for aesthetics, children never are. The business of children is to learn. To successfully accomplish the many activities on which learning hinges, children require unencumbering and, at the same time, stimulating clothes.

Color and Functional Clothing

One of the most stimulating aspects of children's clothes is the primary palette that remains the favorite of children every season. Fabric, too, must be functional, and parents frequently demand material that requires only limited maintenance. Fibers and fabric types for childrenswear are not much different from those found in clothes for comparable uses among adults and teens, although prints, plaids, and stripes are proportioned for the smaller body.

Representative Sizes

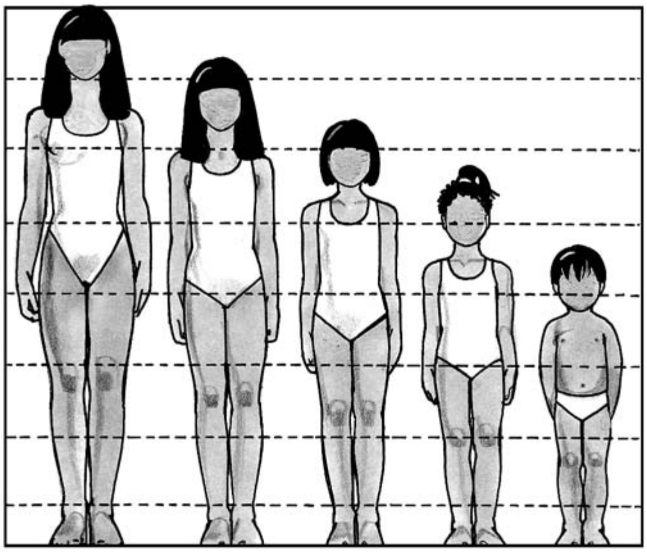
The discussion of the sizes and shapes of children in this chapter includes infants, toddlers, children, preteens, young juniors, and juniors. However, only sizes 3 to 6X and 7 to 14 (boys' and girls') are represented in the patternmaking illustrations.

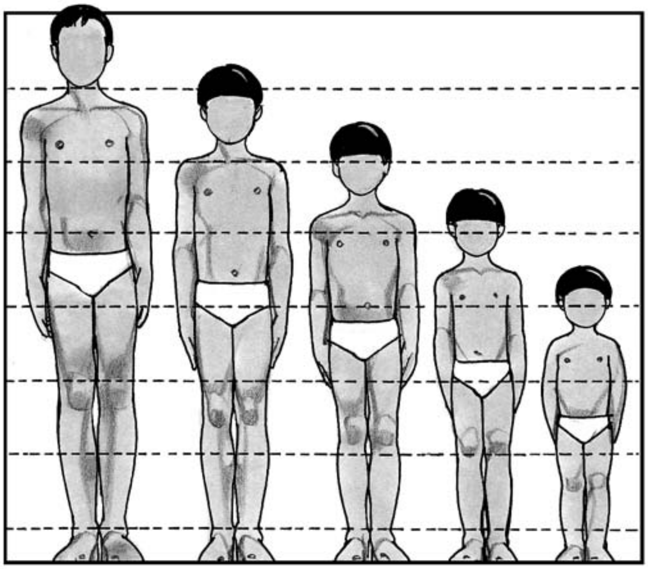
Size Grouping

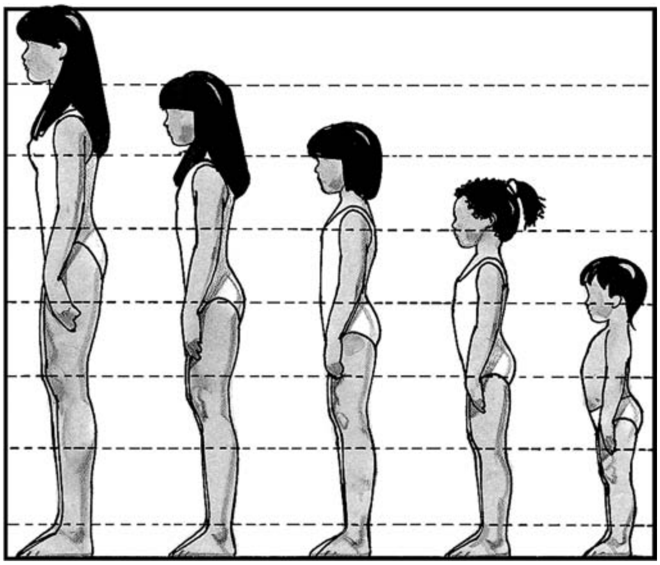
Sizes for children's clothing are grouped according to body circumference and proportion. Overlap between toddlers' and children's sizes occurs as proportions and heights vary within the age range, almost to the same degree that those with the 7 to 14 sizes overlap on the upper end with junior sizing. Size groupings reflect changes in the proportions of children as they pass from infant (3, 9, 12, 18, or 24 months), through toddlers' (2T, 3T, 4T) to children's (3, 4, 5, 6, boys' and girls', with 6X for girls only), and into boys' and girls' sizes (7, 8, 10, 12, and 14). (Size 16 is used for larger boys' pants.)

Observable Differences

Body shapes from infants' through children's size ranges are indistinguishable between boys' and girls'. Although many differences can be observed in styling and color between boys' and girls' clothing from infant through sizes 6 and 6X, differences necessitated by form only become a reality at size 7, when physical shapes begin to diverge.







SIZE CATEGORIES FOR CHILDRENSWEAR

Infants or Babies

Sizes: 3 months, 6 months, 12 months, 18 months, and 24 months. Sizes may also be labeled as Small (S), Medium (M), Large (L), and Extra Large (XL).

Sample size: 12 months or Medium.

Physical observations: Newborn to children beginning to crawl.

Toddlers

Sizes: 2T, 3T, and 4T (1T may also be considered in this size range).

Sample size: 3T.

Physical observations: Child is walking by this time. Head seems to sit on shoulder; neck is not developed. Shoulders are rounded and have almost no width. Outward thrust of tummy is a prominent feature. Boys' and girls' sizes are indistinguishable, and except for color difference and dresses, fashion is unisex.

Children

Sizes: Sizing for children within this group is mixed. They are either sized 3 to 6X (X meaning larger than size 6) for both boys and girls or sized 4 to 6X for girls, and 4 to 7 for boys, with size 3 labeled for toddlers.

Sample size: 5.

Physical observations: There is rapid growth through this period. Proportions differ greatly as the torso remains about the same length, but the legs grow longer. The protrusion of the stomach is reduced. Boys and girls have similar shapes at this age, and the waistline, as yet, is not defined. Boys and girls begin to diverge at age seven.

Boys and Girls (Preteen)

Sizes: 7 to 10. Another method for sizing this group is girls 7 to 14 classified as elementary to junior high school; boys 8 to 20 classified as elementary to junior high school (with chest measurements used for sizing).

Sample size: 10.

Physical observations: Figures diverge when boys and girls reach age seven. Major changes are taking place. Baby fat is replaced with muscle tissue. Slimming and lengthening of the torso and limbs occur, but the figure does not, as yet, have defined curves.

Young Juniors

Sizes: 10 to 14.

Physical observations: There is a jump in growth and the figure is more defined. The torso is longer, a natural waistline appears, and bust and hips start to take shape in girls. Boys have slim hips, blending into the waistline. For both boys and girls, this is an interim period when the figure matures at varying stages. Garments within this upper size range do not always fit the figure well. A better fit may be found in the junior department, with boys' pants fitting better in a size 16. Slim and Regular sizes are separate labels for girls, and Slim, Regular, and Huskys are labels for boys' pants. This labeling indicates special fits for other figure types.

Juniors

Sizes: 1, 3, 5, 7, 9, 11, and 13.

Sample size: 9.

Physical observations: The young woman's figure is developed to almost adult maturity with a defined waistline; high, rounded breast; and shapely hips. The teenager is now ready to wear garments in the junior size range. In young men, the figure is developed almost to maturity. Muscle is more defined and hips are slim, blending with the waistline.

SIZING METHODS

A measurement recording chart is placed at the end of the chapter for use in recording the measurements taken from the measurement chart or those taken from personal model measurements.

The anatomical changes that take place in children between ages six and seven tend to interrupt the regular sequence of graded sizes.

The measurement chart offered in this text is one of many such attempts to establish a good set of working measurements for the industry.

It is difficult for manufacturers, patternmakers, and designers to decide which set of measurements best represents their consumers. They may use age or *height* and *weight* as the standard upon which to determine the sample size, and from which to base the pattern grade.

Alternate Sizing

Another method used for sizing garments uses letters rather than numbers, as follows:

XXS = size 2/3.
XS = size 4/5.
S = size 6/7.
M = size 8.
L = size 10.
XL = size 12.
XXL = size 14.

Large and oversized garments, pants, shorts, and tops are commonly labeled Small, Medium, Large, and Extra Large.

SOURCES OF INSPIRATION

Designers of childrenswear gain inspiration from many diverse sources, including those provided by fashion-minded children.

Younger children are influenced by what they see on TV, in movies, and in books. They want to wear clothing displaying their favorite characters from TV (*Sesame Street* characters, the Simpsons, Dora the Explorer, Mickey Mouse and others), Britney Spears, Walt Disney movies, Superman, or *Twilight* themes, to name a few. A manufacturer must be licensed to use characters based on various television shows. A premium is paid to the creator of cartoon characters that are used on garments. Older children, while still interested in TV and movie characters, become more interested in fashions that are part of the "hip hop scene."

Boys and girls ages 7 to 14 are influenced by fashions of the junior market. They want their garments to reflect those worn by an older sister or brother or by classmates. They have heroes—key players from football, baseball, basketball, hockey, and other sports. They idolize movie stars and music personalities from country, rap, or rock categories and want to dress like them. This infatuation creates fads in fashion, such as the hip hop influence: bag pant, underwear worn as outerwear, and the grunge look (over-oversized). Designers who want to be up to date with the latest fads should study children at school, on the playground, on TV, and in the movies.

Other sources of inspiration are:

- Trims (lace, rickrack, cording, ruffle trims, braiding, appliqués, bows, and so on)
- Closures of unusual design (buttons, zippers, ties, frogs, clasps, ornate metal closures, Velcro, lacings, and others)
- Combinations of fabrics, colors, and textures

Clever usage of all that is available to the designer allows for endless creative ideas.

The smart designer also shops the market for inspiration, in addition to knowing what the competition is doing. When possible, the designer should go to Europe and other fashion centers for inspiration and fashion direction. Literature, historical references, and folk costumes often provide themes for designer collections. Children's fashion magazines are a valuable source of fashion direction. A list of magazines, clipping services, and historical books follows.

Children's Fashion References

Fashion Magazines and Services

Publications

- *Bimbi Di Elegantissima* (twice a year); in Italian; includes all ages up to teens
- *Earnshaw's Infants, Girls and Boyswear Review* (monthly)
- *Kids' Fashions* (monthly); merchandising of childrenswear
- *Moda Bimbi* (three times a year); in Italian
- *Children's Business;* published monthly by Fairchild; covers children's apparel, footwear, toys, and licensing
- *Seventeen, Elle* (both domestic and French editions), *Lei,* and occasional childrenswear issues of *Town and Country*
- *Teens and Boys* (monthly); forecasts style trends
- *Vogue Bambini* (four times a year); in Italian; high-style children's magazine
- *Child;* a resource for upscale childrenswear from both domestic and foreign designers
- *Young Fashions* (monthly); fashion magazine for youthwear
- *Children's Clothing,* Selma Rosen, Fairchild Publications, 1983

Website

- How to become a childrenswear clothing designer: www.stylecareer.com.

  Under "Careers in Fashion," select "Babies and Children's Clothing Designer."

Services

- FirstVIEW Girls
- FirstVIEW Boys
- FirstVIEW Baby
- D3—Junior Retail Report

  The Patricia Brandt Company

  Phone: (323) 650-1222

  www.patriciabrandtcompany.com
- The Middlemarck Clipping Service; features sketches of childrenswear around the country

References

- *Complete Book of Fashion Illustration*

  (How to Draw Children) by Sharon Tate and Mona Edwards, published by Prentice Hall (1995)
- *Fashion Illustration for Designers*

  by Kathryn Hagen, published by Prentice Hall (2004)
- *Drawing and Designing Children's and Teenage Fashions,* by Patrick John Ireland, published by John Wiley and Sons (1979)
- *Inside Fashion Design (chapter 8)*

  by Mona Edwards, Edited by Sharon Tate, published by Prentice Hall (2003)
- *History of Children's Costumes,* Elizabeth Ewing, published by B. T. Batsford (1977)
- *Boys' Fashions, 1885 to 1905,* by Donna H. Felger, published by Hobby House Press (1984)
- *Children's Clothes 1939–1970, the Advent of Fashion,* by Alice Guppy, published by Blandford Press (1978)
- *The Way We Wore: Fashion Illustrations of Children's Wear, 1870–1970* by Linda Martin, published by Encore Editions (1978)

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

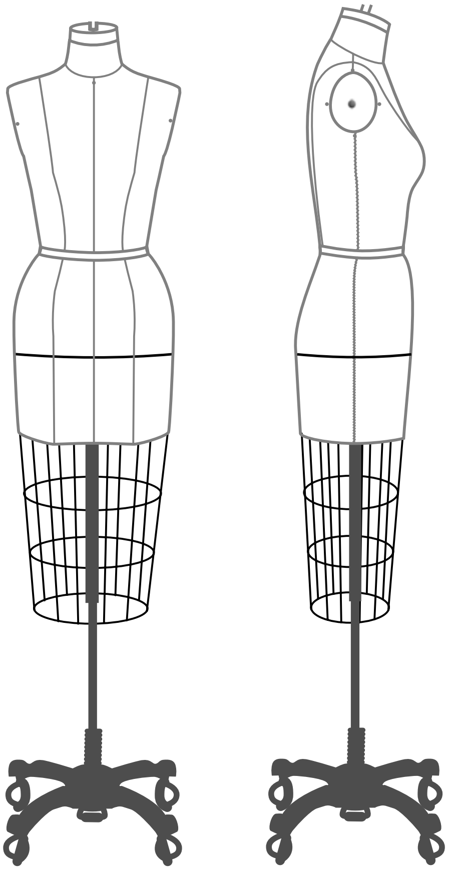
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    - Waist to knee: _____
    - Waist to floor: _____
28. Crotch length: _____
    - Vertical trunk: _____
29. Upper thigh: _____
    - Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    - Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____
2. Waist: _____
3. Abdomen: _____
4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

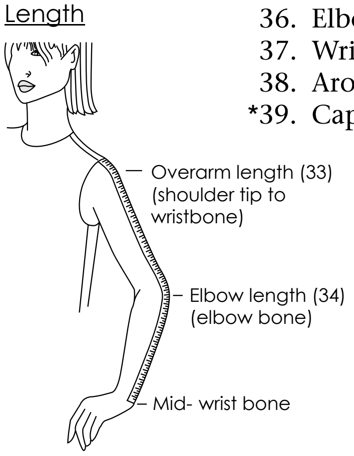
22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

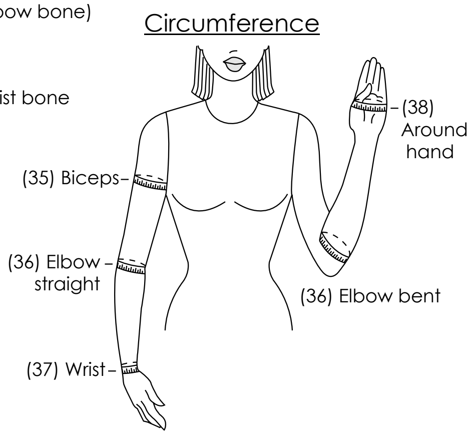
Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____


Length
Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone


Circumference

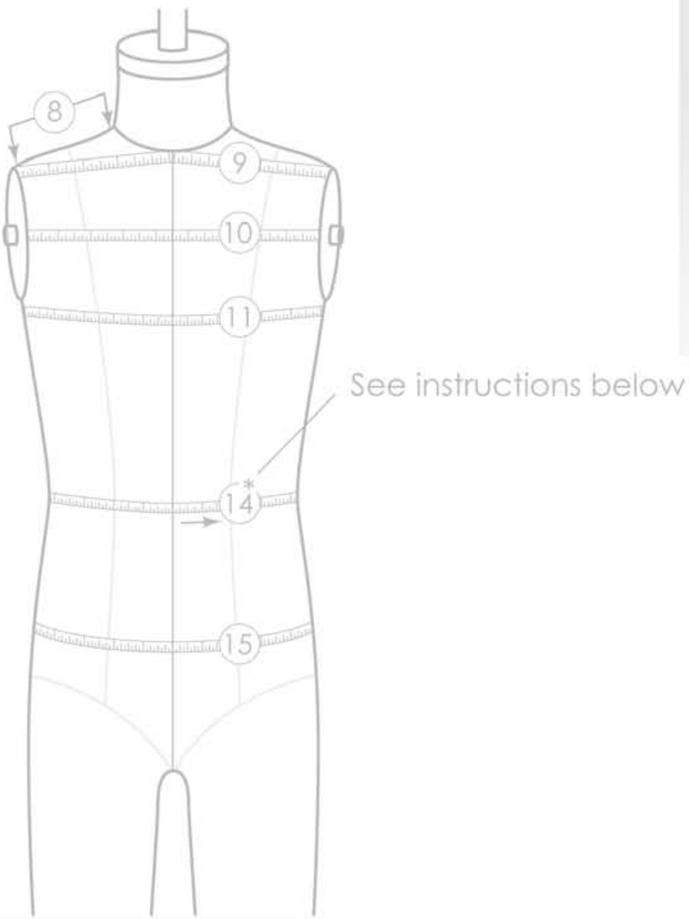
*Measuring the Arm

Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

Drafting the Basic Pattern Set

Measurement Taking and Standard Measurement Charts

MEASURING THE FORM—CHILDREN, 3 TO 6X; GIRLS, 7 TO 14; AND BOYS, 7 TO 14
    Form Preparation
    Armhole Depth Chart: Suggested Measurements
    Torso Circumference Measurements
    Vertical Measurements
    Horizontal Measurements
    Leg Measurements
    Arm Measurements
STANDARD MEASUREMENT CHART FOR BOYS AND GIRLS
STANDARD MEASUREMENT CHART FOR GIRLS
BASIC PATTERN SET FOR GIRLS AND BOYS
    Front Bodice Draft
    Back Bodice Draft
    Basic Skirt Draft
    Basic Sleeve



From Chapter 32 of *Patternmaking for Fashion Design,* 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

MEASURING THE FORM—CHILDREN, 3 TO 6X; GIRLS, 7 TO 14; AND BOYS, 7 TO 14

All measurements must be taken carefully to avoid errors and fit problems. With the exception of circumference measurements, only one-half of the front and back form is measured, using the same half throughout for consistency. Arc measurements are taken at the bust or chest, waist, and hip areas. Form sizes 7 to 14 have front and back princess stylelines, giving the figure some definition. The 3 to 6X forms do not have princess stylelines.

To measure the form, place the metal-tipped end of the measuring tape at a landmark on the form, extending the tape to another landmark. As measurements are taken, record them on your measurement recording chart.

Form Preparation

Figure 1

Place pins through the form to mark the following locations:

- Roll line at shoulder tip.
- Roll line of front and back at mid-armhole (at level with plate screw).
- *Armhole depth:* Place a pinhead below the plate at side seam of the form, using the measurement indicated by the size of the form.
- **Side Length (7).** Measure from the pin mark to below waist tape of the side seam; see Figure 1.

Armhole Depth Chart: Suggested Measurements

Torso Circumference Measurements

Measurements do not include ease.

Children

Size	Below Plate
3	1/8" to 1/4"
4	1/4" to 3/8"
5	3/8" to 1/2"
6	1/2'
6X	Same

Boys and Girls

Size	Below Plate
7	1/2"
8	5/8"
10	5/8"
12	5/8"
14	Same

Figure 2

Bust or chest (1). Measure over the chest or bust and across the back.

Waist (2). Measure around the waist.

Hip (3). Measure around the widest part of the hip, holding the measuring tape parallel to the floor. Pin mark the location at the side seam.

Figure 2

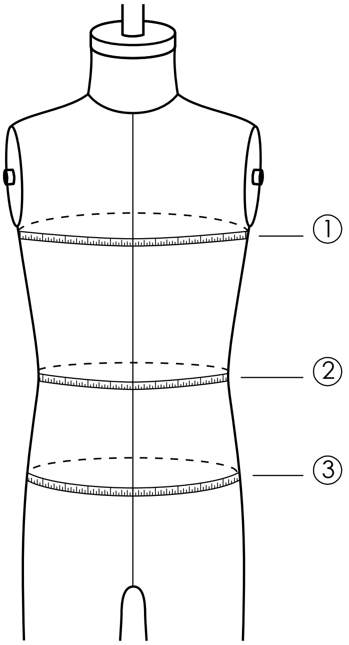
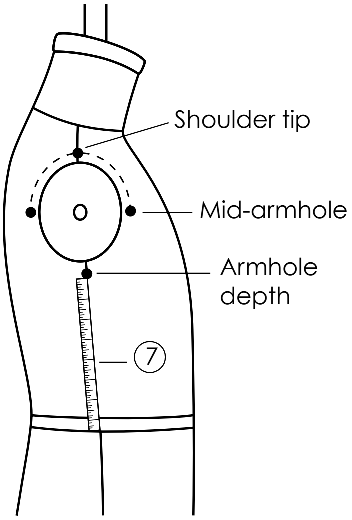


Figure 1



Vertical Measurements

Front and Back

Figures 3, 4

Center length (4). Measure at center neckline to the bottom waist tape (front and back).

Full length (5). Measure from shoulder-neck to the bottom waist tape. The measuring tape is held parallel to the center line (front and back).

Shoulder slope (6). Measure from shoulder tip (pin mark) to the center line at the bottom of the waist below the tape (front and back).

Horizontal Measurements

Front

Figure 5

Shoulder length (8). Measure from the shoulder-neck to the shoulder tip pin mark.

The following measurements are taken across the form, divided in half, and recorded.

Across shoulder (9). Measure from pin marks, shoulder tip to shoulder tip.

Across chest (10). Measure from pin marks, mid-armhole to mid-armhole.

Bust/chest arc (11). Measure from pin marks, side seam to side seam.

Waist arc (14). Sizes 3 to 6X: Measure from side seam to side seam. Sizes 7 to 14: Measure center front to princess line for dart placement.*

Hip arc (15). Measure from pin marks, side seam to side seam, with measuring tape held parallel to the floor.

Back

Figure 6

Across shoulder (9). Measure from pin marks, shoulder tip to shoulder tip.

Across back (12). Measure from pin marks, mid-armhole to mid-armhole.

Back arc (13). Measure from pin marks, side seam to side seam.

Waist arc (14). Sizes 3 to 6X: Measure from side seam to side seam at waist. Sizes 7 to 14: Measure center back to princess line for dart placement.*

Hip arc (15). Pin mark at widest part of the hip. Measure from side seam to side seam at the pin mark, with the measuring tape held parallel to the floor.

Hip depth (16). Measurement from below waist tape to pin mark.

Figure 3

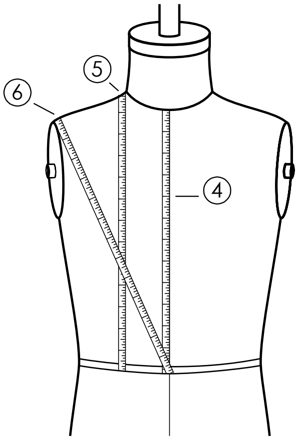


Figure 4

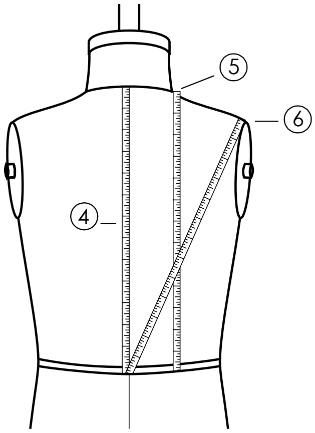
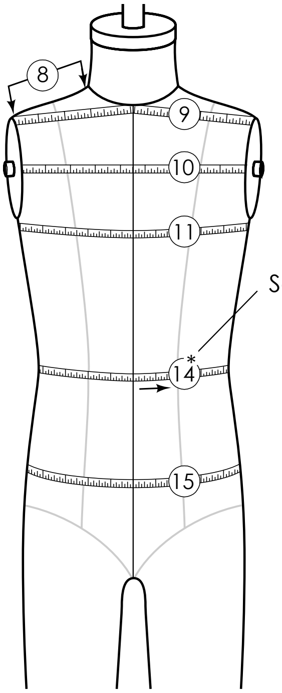
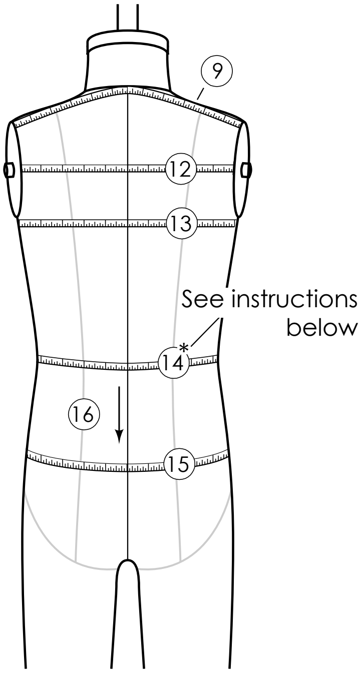


Figure 5



See instructions below

Figure 6



See instructions below

---

*Forms that have princess seams (sizes 7 to 14) measure C.F. and C.B. to princess line and record: C.F. ________ C.B. ________ .

Leg Measurements

Figure 7

(If the form is legless, record measurement numbers 16 through 27 from the Standard Measurement Chart for the size of the form being measured.)

The following measurements are taken from below the waistline tape.

Waist to hip level (16). Measure from waist tape to the pin mark at side seam.

Waist to knee (17). Measure from the waist at side to mid-knee.

Waist to ankle (18). Measure from the waist at side to below ankle tape.

Waist to floor (19). Use waist to ankle (18) measurement and add 2 1/4 inches.

Figure 8

Upper thigh (20). Measure around the widest part of the upper leg.

Knee (21). Measure around the fullest part of the knee.

Calf (22). Measure around the fullest part of the calf.

Ankle (23). Measure around the fullest part of the ankle.

Foot entry (24). Add 2 1/4 inches to ankle measurement.

Figure 9

Trunk length (25). Measure from the front shoulder neck downward, passing under crotch to the back shoulder-neck.

Figure 10

Crotch length (26). Measure from center front waist, passing under crotch to the center back waist.

Figure 9

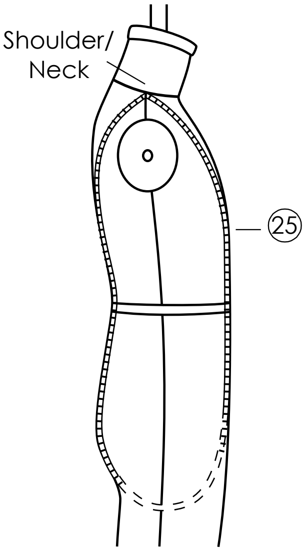

Shoulder/
Neck
㉕

Figure 10

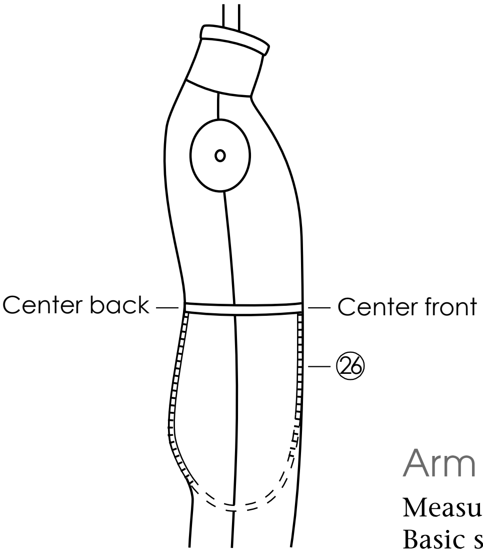

Center back
Center front
㉖

Figure 7

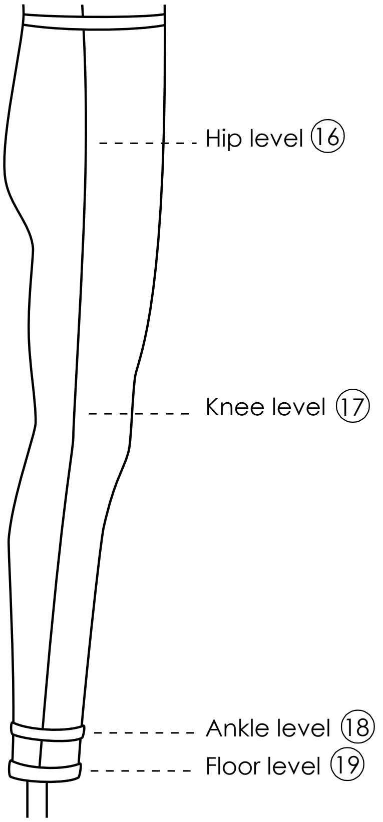

Hip level ⑯
Knee level ⑰
Ankle level ⑱
Floor level ⑲

Figure 8

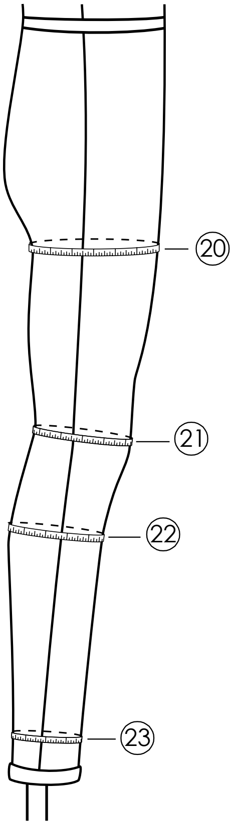
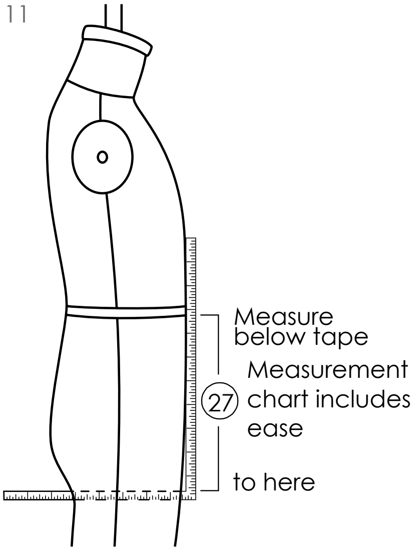


Figure 11

Crotch depth (27). Place a square ruler between legs of the form, with the edges of the ruler arms touching the abdomen and crotch. Measure from below waist to the top edge of the ruler arm at crotch level.

Figure 11


Measure
below tape
Measurement
chart includes
ease
㉗
to here

Arm Measurements

Measurements used for the sleeve are given in the Basic sleeve section later in this chapter.

Standard Measurement Chart for Boys and Girls*

Sizes	3	4	5	6	6X
Height	36–38 1/2	39–41 1/2	42–44 1/2	45–46 1/2	47–48 1/2
Weight	29–32	33–36	37–40	41–46	47–53
Head circumference	19 3/4	20	20 1/4	20 1/2	20 3/4

CIRCUMFERENCE MEASUREMENTS **Grade:**	**1"**	**1"**	**1"**	**1"**	**1"**
(Ease not included) **Size:**	**3**	**4**	**5**	**6**	**6X**
1. Bust, or chest:	22	23	24	25	26
2. Waist:	20	21	22	23	24
3. Hip:	23 1/2	24 1/2	25 1/2	26 1/2	27 1/2
4. Center length:					
Front	8 1/2	9	9 1/2	10	10 1/4
Back	9 1/4	9 3/4	10 1/4	10 3/4	11
5. Full length:					
Front	10 1/2	11 3/8	11 3/4	12 3/8	12 3/4
Back	9 3/4	10 3/8	11	11 5/8	12
6. Shoulder slope:					
Front	10 1/2	11 1/8	11 3/4	12 3/8	12 3/4
Back	9 1/2	10 1/8	10 3/4	11 3/8	11 3/4
7. Side length:	4	4 3/8	4 3/4	5 1/8	5 1/4
8. Shoulder length:	3 3/8	3 7/16	3 1/2	3 9/16	3 5/8
9. Across shoulder:					
Front	5 1/4	5 3/8	5 1/2	5 5/8	5 3/4
Back	5 1/4	5 3/8	5 1/2	5 5/8	5 3/4
10. Across chest:	4 1/4	4 3/8	4 1/2	4 5/8	4 3/4
11. Bust, or chest arc:	5 1/2	5 3/4	6	6 1/4	6 1/2
12. Across back:	4 1/2	4 5/8	4 3/4	4 7/8	5
13. Back arc:	5 1/2	5 3/4	6	6 1/4	6 1/2
14. Waist arc:					
Front	5 1/4	5 1/2	5 3/4	6	6 1/4
Back	4 3/4	5	5 1/4	5 1/2	5 3/4
15. Hip arc:					
Front	5 3/4	6	6 1/4	6 1/2	6 3/4
Back	6	6 1/4	6 1/2	6 3/4	7
16. Side waist to hip:	3 3/4	4 1/2	5	5 1/2	5 3/4
17. Side waist to knee:	12 1/8	13 3/4	15	16 1/4	16 7/8
18. Side waist to ankle:	20	22 1/2	24 1/2	26 1/2	27 1/2
19. Side waist to floor:	22	24 1/2	26 1/2	28 1/2	29 1/2
20. Upper thigh:	13	13 1/2	14	14 1/2	15
21. Knee:	10 1/4	10 5/8	11	11 3/8	11 3/4
22. Calf:	9 1/4	9 5/8	10	10 3/8	10 3/4
23. Ankle:	7	7 1/4	7 1/2	7 3/4	8
24. Foot entry:	10 1/2	10 3/4	11	11 1/4	11 1/2
25. Trunk length:	38	40 3/4	43	45 1/4	46 1/2
26. Crotch length:	17	18 1/2	19 1/2	20 1/2	21
27. Crotch depth:	6 1/2	7 1/4	7 3/4	8 1/4	8 1/2
28. Overarm sleeve length:	13 1/4	14 1/8	15	15 7/8	16 1/2
29. Biceps:	8 3/4	9 1/8	9 1/2	9 7/8	10 1/4
30. Hand entry:	6 1/2	6 3/4	7	7 1/4	7 1/2
31. Cap height:	4 1/8	4 1/4	4 3/8	4 1/2	4 5/8

Some manufacturers use size 6 measurements to include size 6X. The only difference noted is in the length. Others combine size 6X with size 7 (1-inch grade is used for all sizes).

For sleeve measurements see the Baisc sleeve section later in this chapter.

***Graded children's patterns are available for purchase. Send requests to patterns4sale.com.**

Standard Measurement Chart for Girls*

Sizes	7	8	10	12	14
Height	48–50	50 1/2–52 1/2	53–55	55 1/2–57 1/2	58–60
Weight	47–53	54–63	64–74	75–84	85–94
Head circumference	21	21 1/4	21 1/2	21 3/4	22

CIRCUMFERENCE MEASUREMENTS **Grade:**	**1"**	**1"**	**1"**	**1"**	**1"**
(Ease not included) **Size:**	**7**	**8**	**10**	**12**	**14**
1. Bust, or chest:	26 1/2	27 1/2	28 1/2	29 1/2	30 1/2
2. Waist:	22	23	24	25	26
3. Hip:	28	29	30	31	32
4. Center length:					
Front	10 1/8	10 1/2	11	11 1/2	12
Back	11 3/8	11 3/4	12 1/4	12 3/4	13 1/4
5. Full length:					
Front	12 3/8	12 5/8	13 1/4	13 7/8	14 1/2
Back	11 7/8	12 3/8	13	13 5/8	14 1/4
6. Shoulder slope:					
Front	12 3/8	12 7/8	13 1/2	14 1/8	14 3/4
Back	11 7/8	12 3/8	13	13 5/8	14 1/4
7. Side length:	5 7/8	6 1/8	6 1/2	6 7/8	7 1/4
8. Shoulder length:	3 7/8	3 15/16	4	4 1/16	4 1/8
9. Across shoulder:					
Front	6 1/8	6 1/4	6 3/8	6 1/2	6 5/8
Back	6	6 1/8	6 1/4	6 3/8	6 1/2
10. Across chest:	5	5 1/8	5 1/4	5 3/8	5 1/2
11. Bust, or chest arc:	6 3/4	7	7 1/4	7 1/2	7 3/4
12. Across back:	5 1/4	5 3/8	5 1/2	5 5/8	5 3/4
13. Back arc:	6 7/8	7 1/8	7 3/8	7 5/8	7 7/8
14. Waist arc:					
Front	5 3/4	6	6 1/4	6 1/2	6 3/4
Back	5 1/4	5 1/2	5 3/4	6	6 1/4
15. Hip arc:					
Front	6 1/2	6 3/4	7	7 1/4	7 1/2
Back	7 1/2	7 3/4	8	8 1/4	8 1/2
16. Side waist to hip:	5 1/8	5 1/2	6	6 1/2	7
17. Side waist to knee:	15 1/2	16 1/2	18	19 1/4	20 1/2
18. Side waist to ankle:	27 7/8	29 1/2	32	34	36
19. Side waist to floor:	30 7/8	32 1/2	35	37	39
20. Upper thigh:	16	16 1/2	17	17 1/2	18
21. Knee:	11 3/4	12 1/8	12 1/2	12 7/8	13 1/4
22. Calf:	11 1/4	11 5/8	12	12 3/8	12 3/4
23. Ankle:	8	8 1/4	8 1/2	8 3/4	9
24. Foot entry:	10 1/2	10 3/4	11	11 1/4	11 1/2
25. Trunk length:	45.5	47 1/4	49 1/2	51 3/4	54
26. Crotch length:	21 1/4	22	23	24	25
27. Crotch depth:	7 5/8	8	8 1/2	9	9 1/2
28. Overarm sleeve length:	16	16 5/8	17 1/2	18 3/8	19 1/4
29. Biceps:	9 3/4	10 1/8	10 1/2	10 7/8	11 1/4
30. Hand entry:	7 5/8	7 7/8	8 1/8	8 3/8	8 5/8
31. Cap height:	4 1/2	4 5/8	4 3/4	4 7/8	5

Some manufacturers use size 6 measurements to include size 6X. The only difference noted is in the length. Others combine size 6X with size 7 (1-inch grade is used for all sizes).

***Graded children's patterns are available for purchase. Send requests to patterns4sale.com.**

BASIC PATTERN SET FOR GIRLS AND BOYS

The basic patterns are drafted for all size groups and genders. The boy's basic pattern draft will be converted to a dartless foundation.

Front Bodice Draft

Figures 1a, b

A–B = **full length (5)**, plus 1/16".

A–C = **across shoulder (9).** Square a 5" line down from C.

B–D = **center front length (4)**, less 3/8". Square 3" from D.

B–E = **chest arc (11)**, plus 1/2". Square out from B and up from E.

B–F = **slope (6)**, plus 1/8" touches on C line.

F–G = **shoulder length (8)**, touches A–C line. Square from G to D line.

B–H = 2 1/4", or to princess line. Mark dart leg.

H–I = **dart intake**: 1" (for 7 to 14). Mark. 1/2" (for 3 to 6X). Mark.

Boys only: Mark dart space (H–I). Do not complete the dart. To continue, go to **E–K for 3 to 6X, or E–K–L for 7 to 14.**
Girls only: Mark center between H–I and square a line 1 1/2" less than **side length.** Mark J. Draw dart legs from J to H and J to I.

3 to 6X: See Figure 1a

E–K = 3/4" up from E. Mark.

K–I = draw waistline from K to I. (See Figure 1b.)

K–M = **side length (7).** Mark M.

7 to 14: See Figure 1b

E–K–L = 3/4" up from E. Mark K. Square in 1/2" from K. Mark and label L.

L–I = draw waistline to I.

L–M = **side length (7).** Draw line to intersect with the K–M line. *If necessary, adjust K and L to correct waist measurement, to include 1/4" ease.*

F–N = 2 1/2" down from F. Mark N.

N–O = 7/8" squared from N. Mark and square out from both sides of O, as shown.

Figure 2

- *Neckline shape:* Curved ruler touches G–D and diagonal mark.
- *Armhole shape:* Curved ruler touches F, O, and M.

Measurments Needed:

- (5) Full length F _______ B _______.
- (9) Across shoulder F _______ B _______.
- (4) Center length F _______ B _______ .
- (11) Bust or chest arc _______ .
- (6) Shoulder slope F _______ B _______.
- (8) Shoulder length _______.
- (7) Side length _______ .
- (13) Back arc _______ .
- (14) Waist arc F _______ B _______ .
- Center to princess line F _______, B _______.

Figure 1b

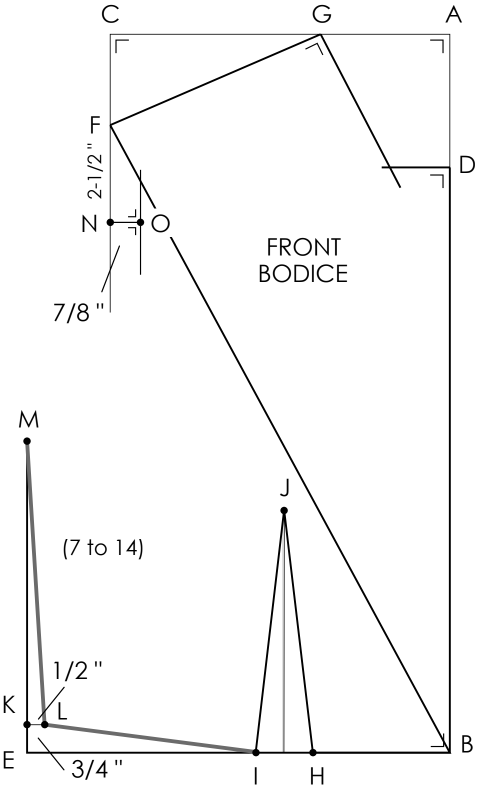


Figure 1a

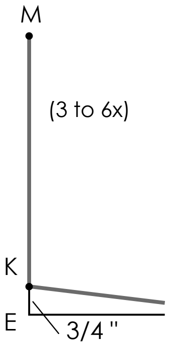
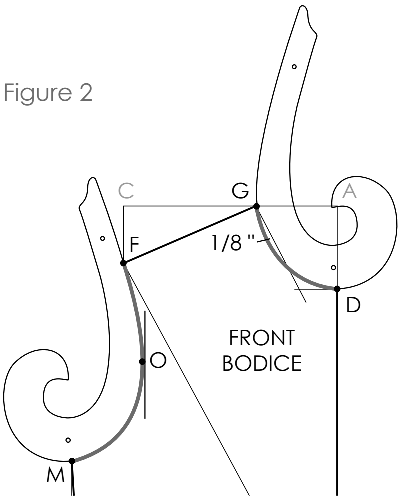


Figure 2



Back Bodice Draft

Figure 3

A–B = **full length (5)**, plus 1/16".

A–C = **across shoulder (9).** Square from A. Square a 5" guideline down from C.

B–D = **center back length (4).** Mark and square 4" line from D.

B–E = **back arc (13)**, plus 5/8". Square from B and up from E.

B–F = **slope (6)**, plus 1/8". Touch on C guideline.

A–G = 2 1/2" (3 to 6X), 2 3/4" (7 to 14). Mark.

G–H = **shoulder length (8)**, plus 1/4" for ease. Passes through F. Label H. Square down from G–H line to intersect with D line.

B–I = **waist arc (14)**, plus 1/4" ease and 1" for dart intake. Mark.

I–J = square down 1/8".

J–K = **side length (7)**. Draw line from J to K, touching E line.

B–L = 2 1/2", or use princess measurement. Label L.

L–M = 1" dart intake for both sizes.

Boys only: Mark only dart space (L–M). Do not complete the dart. Draw a slightly curved line from M to J. To continue, go to F–O.

Girls only: Mark center between L–M and square a line 1 1/2" less than **side length.** Mark N. Draw dart legs from N to L and N to M. Draw a slightly curved line from M to J.

F–O = 2 1/2" down from F. Label O.

O–P = 5/8" squared from O. Mark and square out from both sides of P, as shown.

Figure 4

- *Neckline shape:* Curved ruler touches G–D and diagonal mark.
- *Armhole shape:* Curved ruler touches H, P, and K, as shown.

It is best to test the front and back bodice before stitching the sleeve and skirt to the bodice. Preshrink the fabric before cutting the patterns.

Figure 3

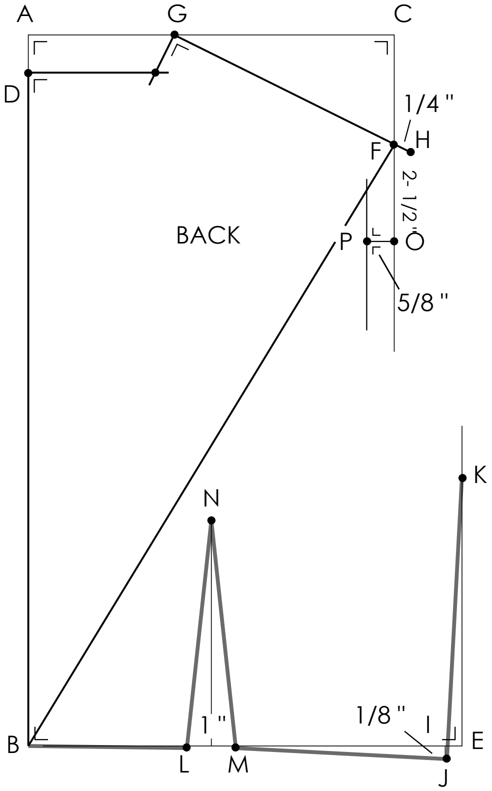
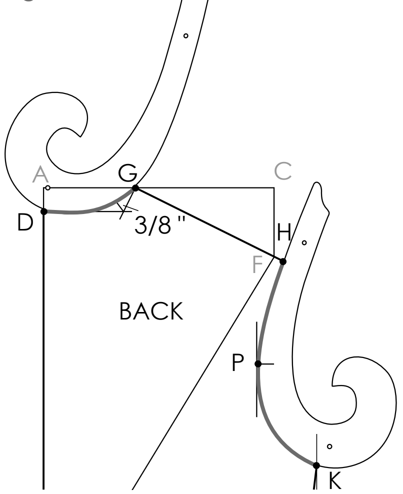


Figure 4



Children 3 to 6X

Even though body curves in sizes 3 to 6X are not yet clearly defined, the author's draft included darts in the front and back bodice, skirt, and sleeve for greater design possibilities.

Basic Skirt Draft

The basic skirt is part of the basic pattern set and is stitched to the bodice for the second test fit. It can be used as a separate skirt with a waist band and should also be tested for fit.

Measurements Needed

- Skirt length (as desired) _______ .
- (15) Hip arc F _______ , B _______ .
- (16) Waist to hip _______.
- (14) Waist arc F _______ , B _______ .

Figure 1

A–B = **skirt length.** Draw a line from A to B.

A–C = **waist to hip (16).** Mark and label HBL.

C–D = **hip arc.** Add the front and back hip arc (15) together, plus 3/4" for hip ease and square the line.

A–E = C–D.
Square a line from A.

B–F = C–D.
Square a line from B.
Connect a line from E to F.

A–G = **front waist arc (14),** plus 1/4" (ease), and 1/2" for dart intake. Mark.

E–H = **back waist arc (14),** plus 1/4" (ease), and 1 inch for dart intake. Mark.

Side Seam Placement

- Mark a point centered between points H and G. Label I and square down to hemline. Label hem J and hip K.

Dart Placement

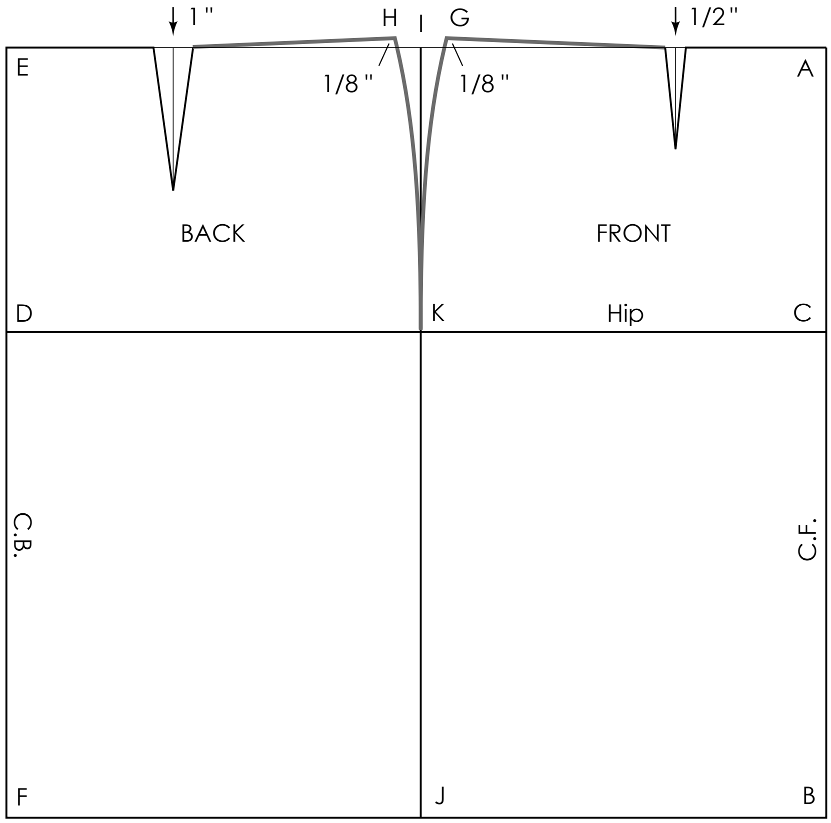
- *Front skirt:* Mark the first dart leg, to match the front bodice dart leg. Mark dart intake 1/2".
- *Back skirt:* Mark the first dart leg to match the back bodice dart leg. Mark dart intake 1".
- Mark centers of each dart and square down 2 1/2 inches for front dart and 3 to 5 inches for back dart.
- Draw dart legs to dart points of the front and back skirt.

Hipline

- Draw hipline up from K to 1/8 inch past H and G.
- Draw waistline curve from H and G to dart legs.
- Walk waistlines of the skirt with bodice. Adjust at side seam if necessary.
- Cut the patterns from paper and separate.

The pattern is seamless for pattern development. Add seams to muslin for a test fit.

Figure 1



Basic Sleeve

The draft applies to both size groups and genders. The average cap ease for sizes 3 to 6X is about 3/4 inch, and 1 to 1 1/4 inch for sizes 7 to 14. The sleeve cap ease can be adjusted. Choose measurements for your model size from the sleeve draft measurements chart.

Sleeve Draft

Figure 1

A–B = **sleeve length.** Draw line in the center of the paper.
A–C = **cap height** (establishes biceps level).
B–D = one-half of B–C.
D–D' = 1/2 inch up (establishes elbow level).
Square out from both sides of A, C, D', and B.
C–E = one-half of biceps measurement. Mark.
C–F = C–E.
Draw lines from A to E and A to F.
Divide A–E and A–F into fourths.
Label back sleeve G, H, and I.
Label front sleeve J, K, and L.
B–M = 1 inch less than C–E.
B–N = B–M.
Draw a line from M to E and N to F.

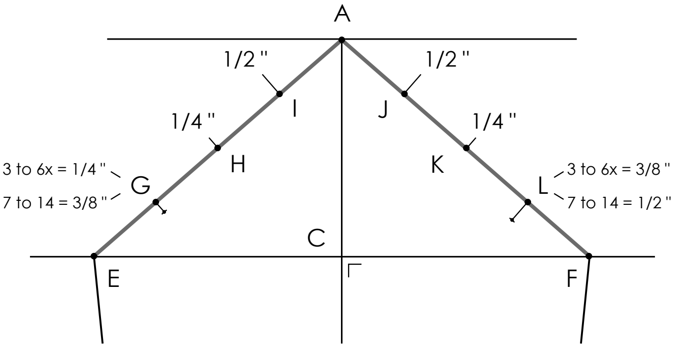
Preparing Sleeve Cap for Shaping

Figure 2

Follow the illustration in Figure 2 as a guide:

- Square out from H, I, (back sleeve) and J, K (front sleeve) to the amount given.
- Square in at G (back sleeve) and L (front sleeve). Choose the amount for the size being drafted.

Figure 2



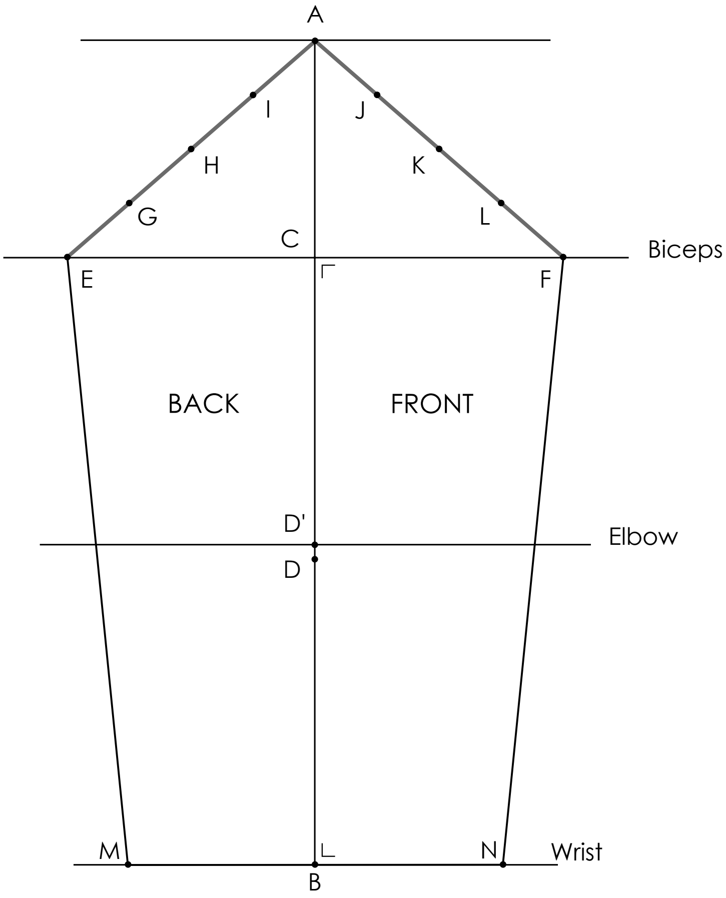
Sleeve Draft Measurements

The standard sleeve draft measurements apply to the sizes given.

Sizes	**3**	**4**	**5**	**6**	**6X**
Sleeve length	13 1/4	14 1/8	15	15 7/8	16 1/2
Cap height	4 1/4	4 3/8	4 1/2	4 5/8	4 3/4
Biceps	8 3/4	9 1/8	9 1/2	9 7/8	10 1/4

Sizes	**7**	**8**	**10**	**12**	**14**
Sleeve length	16	16 7/8	17 3/4	18 5/8	19 1/2
Cap height	4 1/2	4 5/8	4 3/4	4 7/8	5
Biceps	9 3/4	10 1/8	10 1/2	10 7/8	11 1/4

Figure 1



Figures 3 a, b

Shaping the Sleeve Cap

- Place a French rule touching A, J, K. Continue the line past K. Place the rule touching F, L and blend with K line (Figure 3a).
- Place a French rule touching A, I, H. Continue the line past H. Place the rule touching E, G and blend with H line (Figure 3b).

Figure 3a

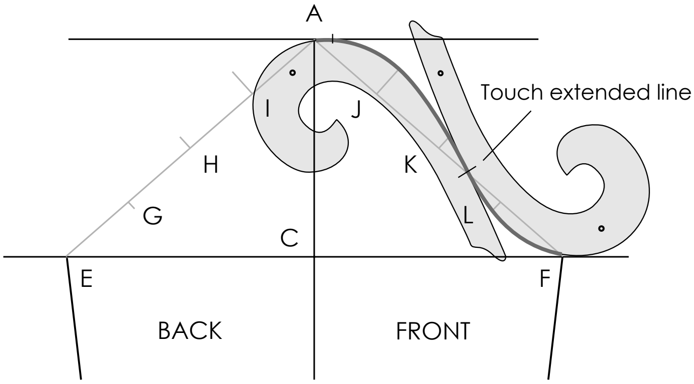

A
Touch extended line
I
J
H
K
G
L
C
E
F
BACK
FRONT

Figure 3b

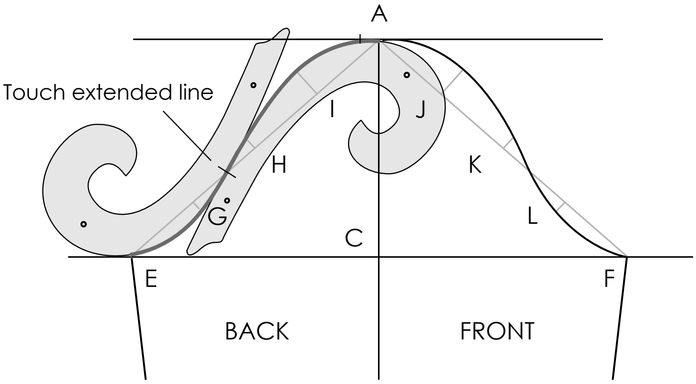

A
Touch extended line
I
J
H
K
G
L
C
E
F
BACK
FRONT

Figure 4

Elbow Dart Placement

O–P = half of O–D'. Mark.

O–Q = 1/2" for dart intake.

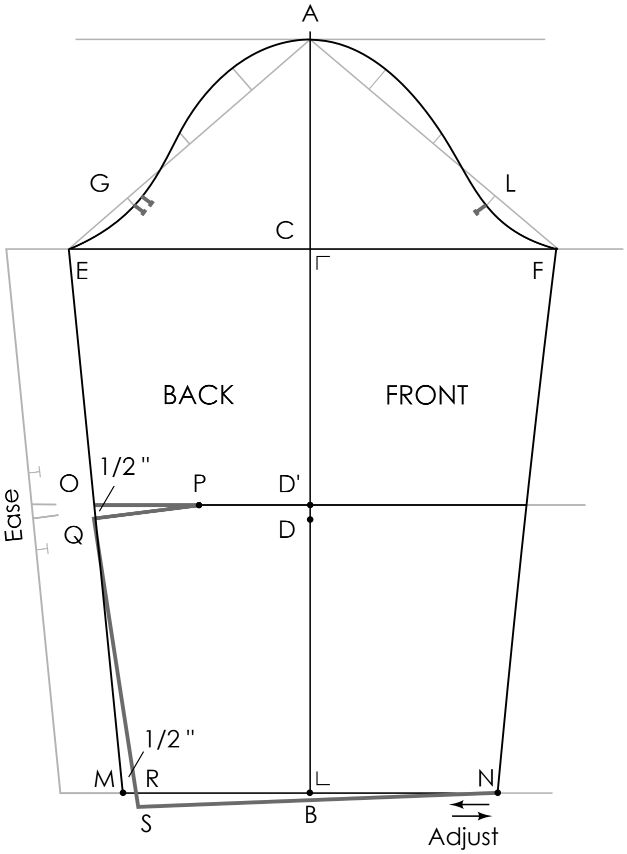
M–R = 1/2". Mark.

Draw a line from Q through R to equal the O–M line. Label S and continue the line to N.*

Sleeve Cap Notches

- *Back sleeve:* Mark notch at G and another 1/2" up.
- *Front sleeve:* Mark one notch at L. Center notch is placed after the cap ease is determined.*
- Mark on the front and back sleeve cap where the shoulder tips of the armholes end.
- Shift the center cap notch in the direction of the greatest ease to equalize the excess, if necessary.

Figure 4


A
G
L
C
E
F
BACK
FRONT
Ease
O
1/2"
P
D'
Q
D
1/2"
M
R
N
S
B
Adjust

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

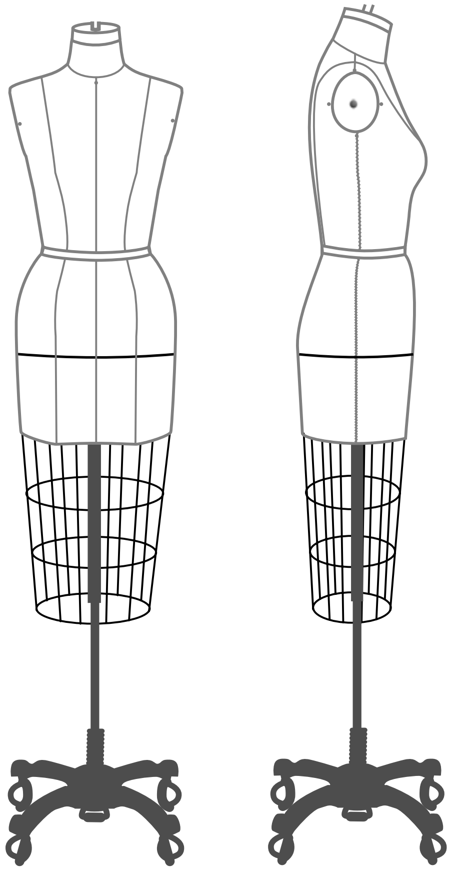
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
   B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
    Front = 1" (2 darts 1/2 to 5/8")
    Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

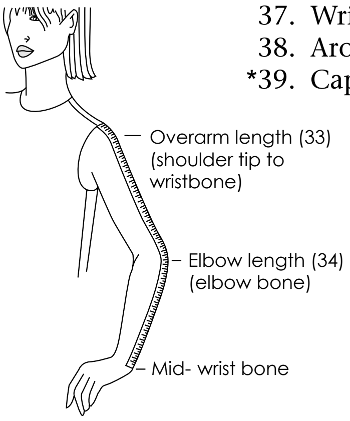
Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

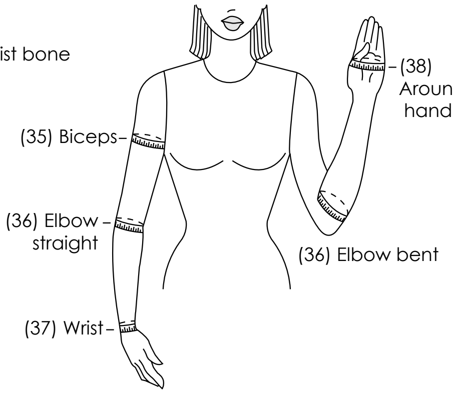
Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____

Length



Circumference



*Measuring the Arm

Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

This page intentionally left blank

Collars, Sleeves, and Skirts

From Chapter 33 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

Collars, Sleeves, and Skirts

COLLAR DESIGNS
- 1. Shirt Collar
- 2. Sailor Collar
- 3. Peter Pan Collar
- 4. Collar and Stand

DARTLESS SLEEVE FOUNDATION
- Dartless Sleeve Draft

SLEEVES
- 1. Puff Sleeve
- 2. Leg-o-Mutton
- 3. Petal Sleeve
- 4. Bell Sleeve

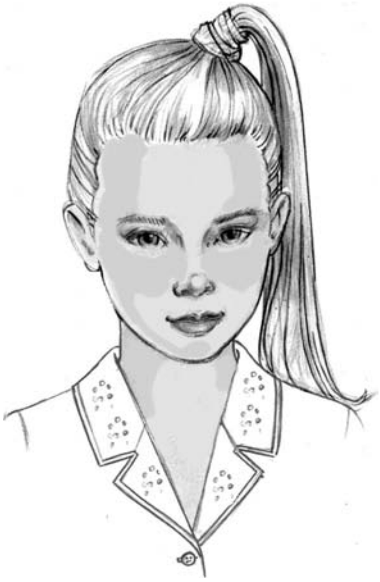
SLEEVE DESIGN VARIATIONS
- Cap Sleeve—Design 1
- Ruffled Sleeve—Design 2
- Saucer Sleeve—Design 3
- Baby Puff Sleeve—Design 4
- Drawstring Sleeve

SKIRTS
- 1. Tiered Skirts
- 2. Cascades/Partial Circles
- 3. Gore Skirt
- 4. Pleated Skirt
- 5. Full Circle Skirt
- Flared Skirt
- Gathered Skirt with Stylized Waist Band
- Yoked Circular Skirt

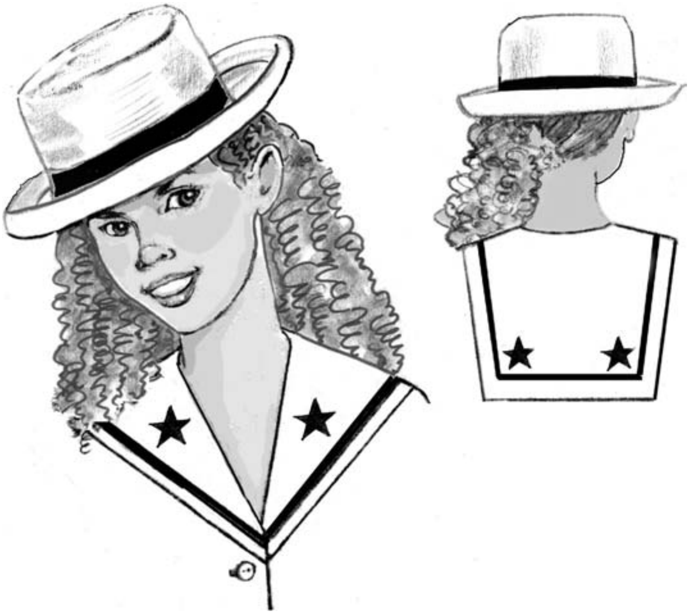
COLLAR DESIGNS

Collars that are shown follow the same draft instructions given for adult collars.

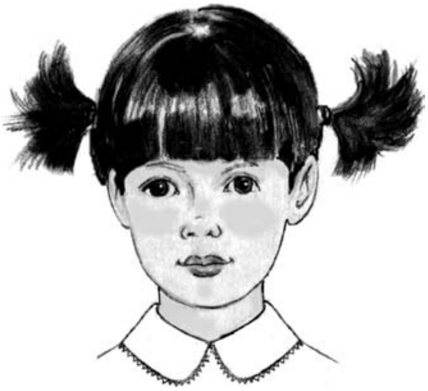
1. Shirt Collar



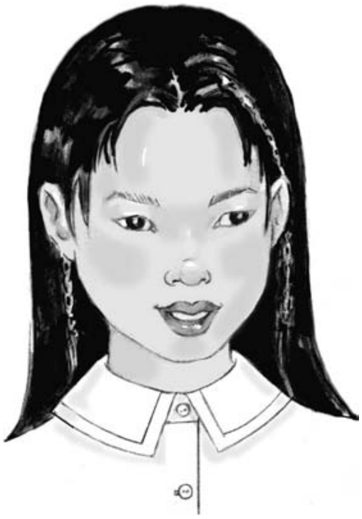
2. Sailor Collar



3. Peter Pan Collar



4. Collar and Stand



DARTLESS SLEEVE FOUNDATION

The dartless sleeve is developed from the basic sleeve. The dartless sleeve can be used as a base for sleeves not requiring an elbow dart. Two types of dartless sleeve foundation are illustrated: the full sleeve and the half sleeve. Use the full dartless sleeve for sleeve designs that vary on each side of the grainline and the half sleeve for designs that are the same on the back and front sleeve except for the curve of the front capline.

Dartless Sleeve Draft

Figure 1

- Trace the basic sleeve (broken lines).
- Square a line from the grainline to front hemline and continue line across the pattern (broken lines indicate the original hemline).
- Square lines down from biceps. (The elbow dart is eliminated.)

Figure 2

- Measure and mark one-half of entry measurement out from each side of the grainline and draw lines to biceps for reference.
- Divide the sleeve into four equal parts and draw lines through the pattern.
- Divide the cap into four equal parts.
- Cut the sleeve from paper.

Figure 2

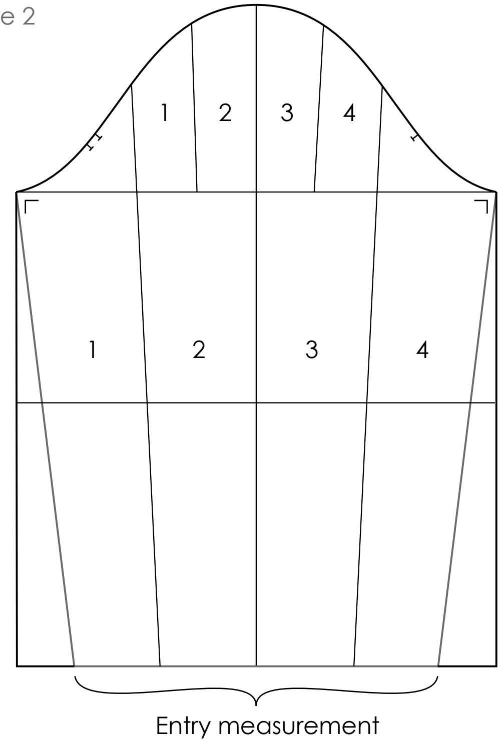


Figure 1

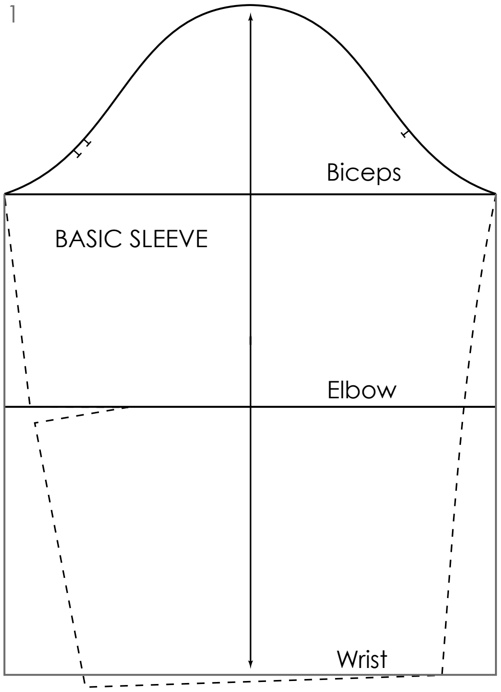
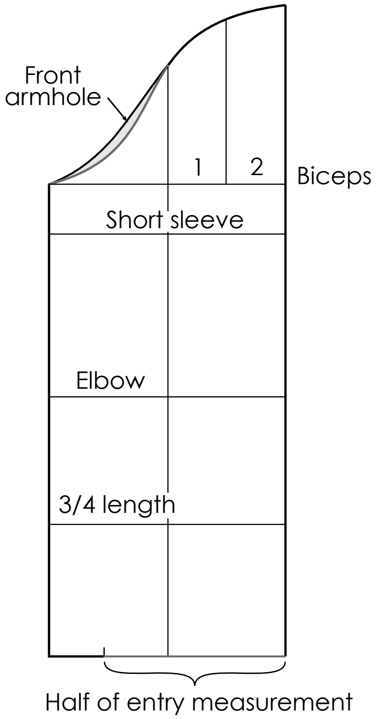


Figure 3 Half Sleeve

- Trace the back sleeve to the grainline; include lines (1 and 2).
- Mark for entry.
- Place the front sleeve on top of the back sleeve and trace curve of the sleeve (gray area separates front from back sleeve).

Suggestion: Mark sleeve lengths for quick reference.

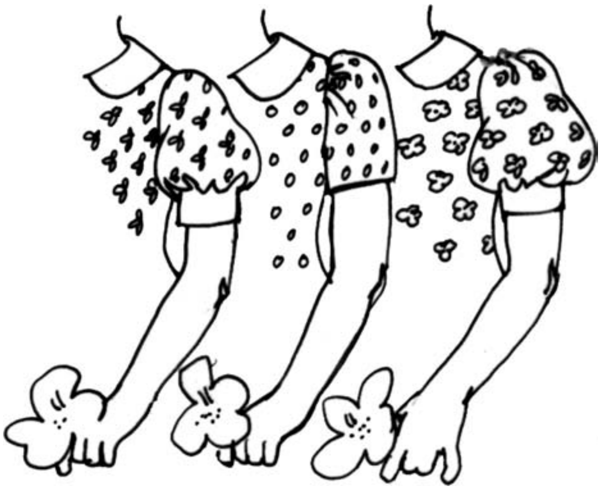
Figure 3



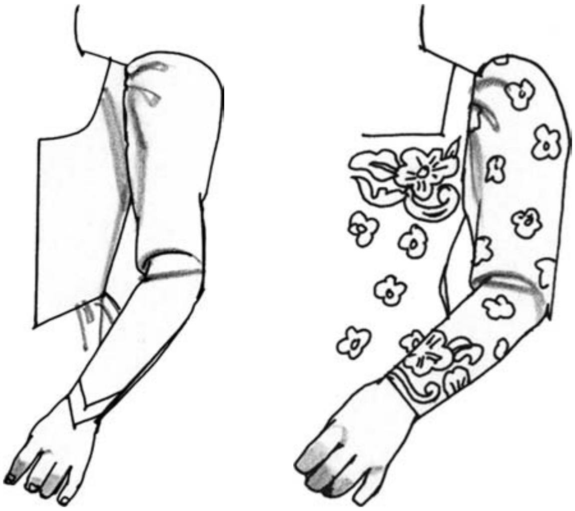
SLEEVES

Sleeves that are shown follow the same instructions given for adult sleeves of the same designs.

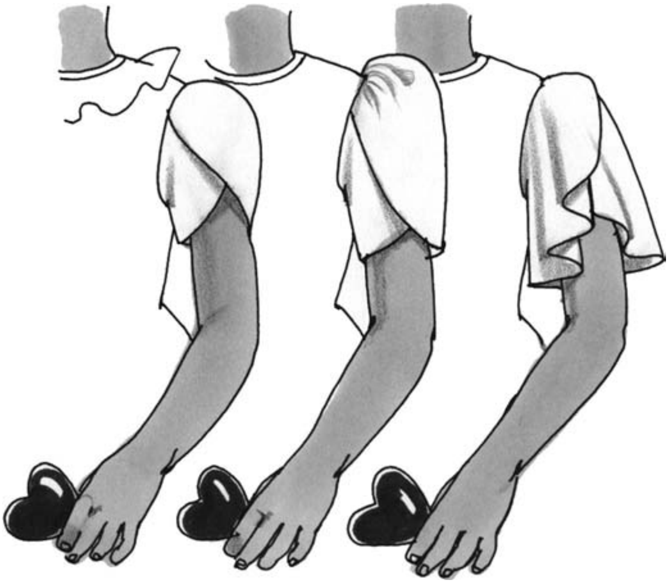
1. Puff Sleeve



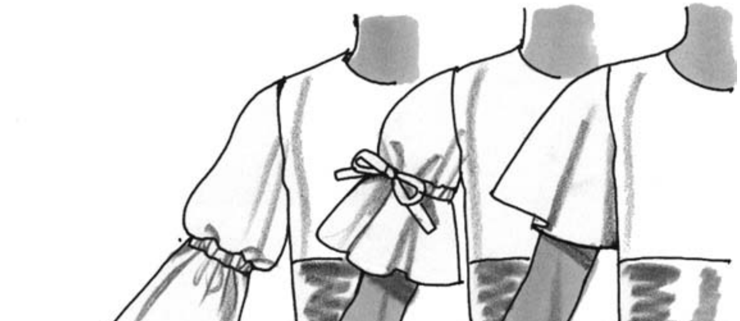
2. Leg-o-Mutton



3. Petal Sleeve

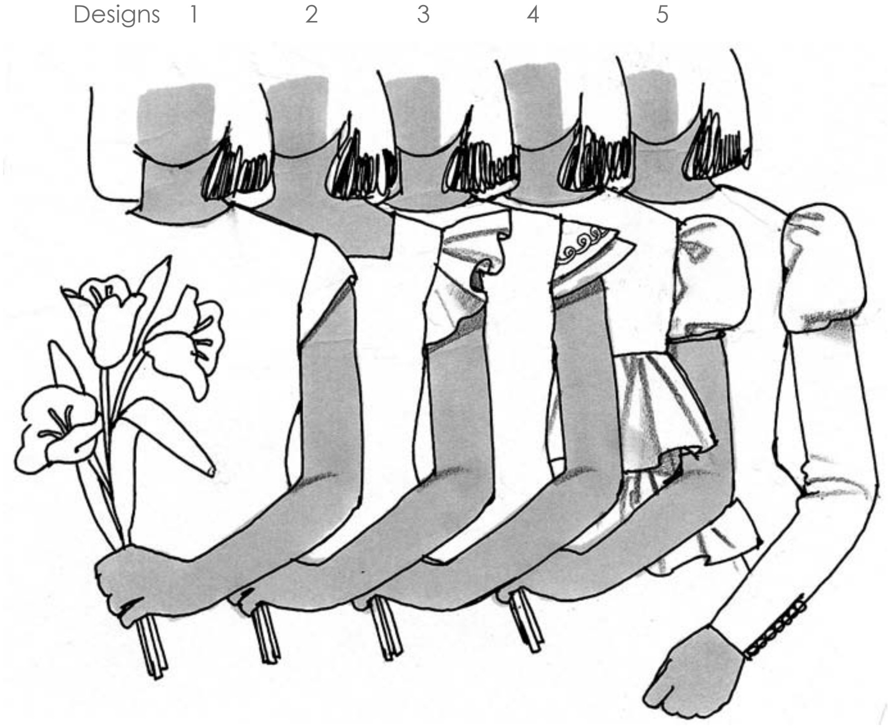


4. Bell Sleeve



SLEEVE DESIGN VARIATIONS

The first four sleeve designs are illustrated, with Design 5 presented as a thought problem.


Designs 1 2 3 4 5

Cap Sleeve—Design 1

The sleeve cap fits closer around the upper arm area than does the basic sleeve.

Figure 1

- Trace the upper part of the dartless sleeve.
- Draw the curved hemline, as shown.
- Mark the slash line.

Figure 1

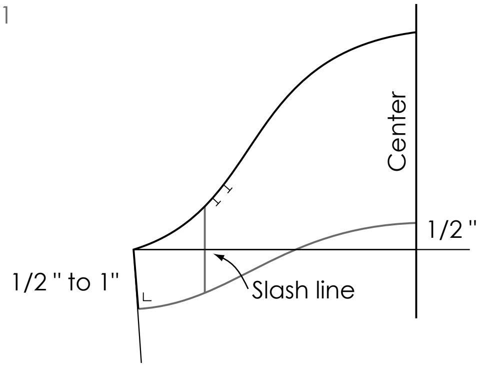
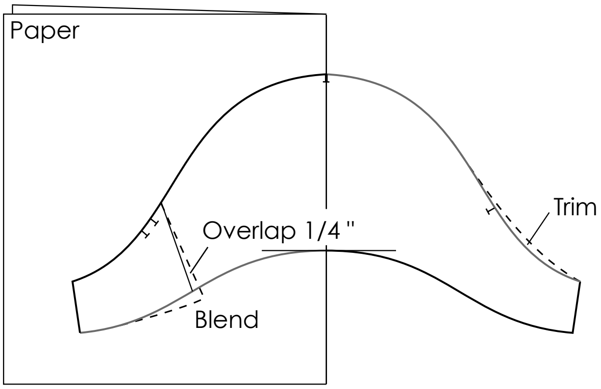

Center
1/2"
1/2" to 1"
Slash line

Figure 2

- Cut the pattern from paper, slash, and place on fold of paper.
- Overlap slash line; secure and trace the sleeve. Blend lapped area.
- Cut and trim where shown.

Figure 2


Paper
Overlap 1/4"
Trim
Blend

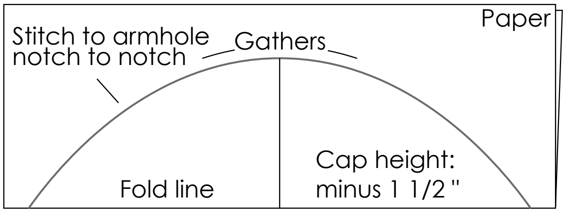
Ruffled Sleeve—Design 2

The ruffled sleeve is stitched to the armhole, notch to notch. To determine fullness, measure the front and back bodice armhole from notch to notch and add two times the measurement. The sleeve can be stitched past the armhole notches, if desired.

Figure 1

- Fold the paper, mark the center, and square a line up 1 1/2 inches less than the cap height.
- On the fold, measure out from the center to the amount of fullness desired.
- Draw a curved line to the marks on each side of center.
- Complete the pattern for a test fit.

Figure 1



Fullness: 2 or 3 to 1

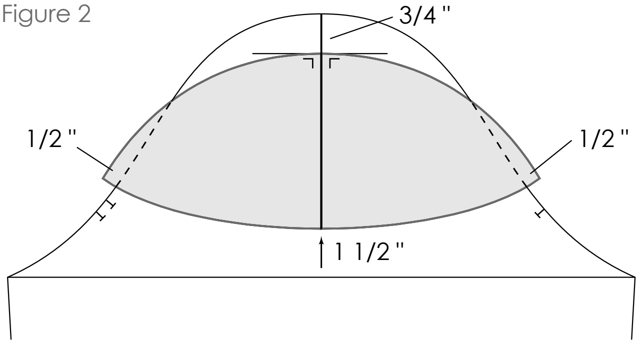
Saucer Sleeve—Design 3

The sleeve juts directly out from the armhole and can be varied for different effects.

Figure 2

- Trace the sleeve cap and follow the illustration as a guide for plotting the pattern.
- Cut from paper. The sleeve should be self-faced, with interconstruction to hold its shape.

Figure 2



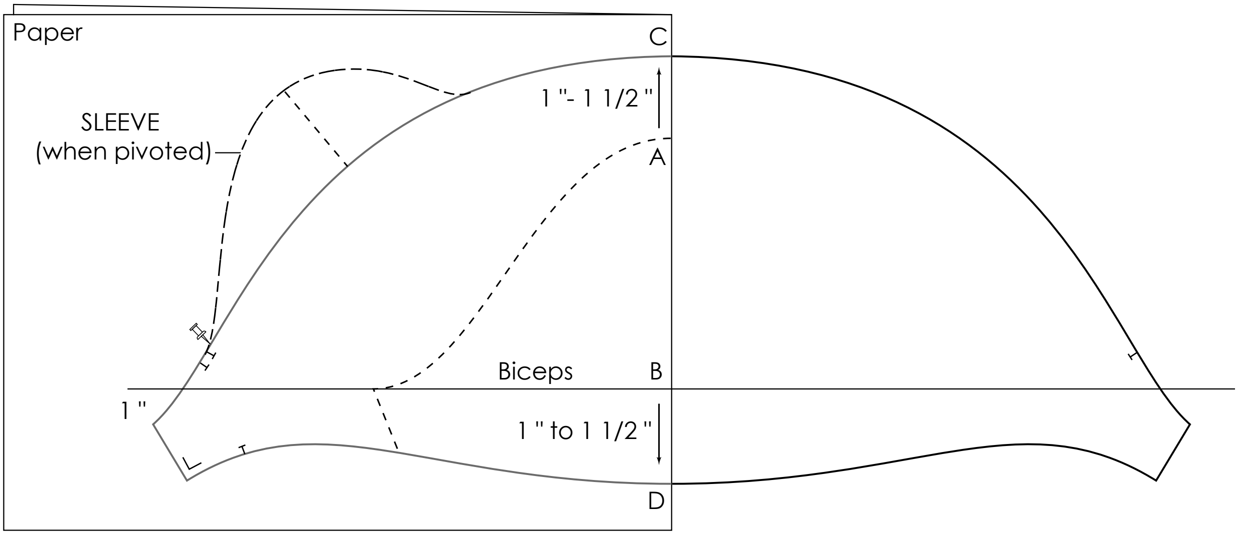
Baby Puff Sleeve—Design 4

The baby puff is specially drafted for controlled fullness that will not overwhelm the garment to which it is attached. The sleeve is for sizes 3 to 5.

Figure 3

- Trace the sleeve cap on fold of the paper (broken lines).
- Draw a square line across biceps.
- Shift sleeve along the biceps line equal to biceps width for fullness.
- Place a push pin at notch and pivot the pattern downward, 1 inch below the square line.
- Trace the sleeve curve to 1 inch down from the underseam. (Uneven broken line is the position of the sleeve when pivoted.)
- Remove sleeve and draw the curved capline and hemline of the sleeve, as illustrated.
- Complete the pattern for a test fit.

Figure 3



Drawstring Sleeve

The sleeve with a pull-up tie is based on the basic, or the dartless sleeve pattern.

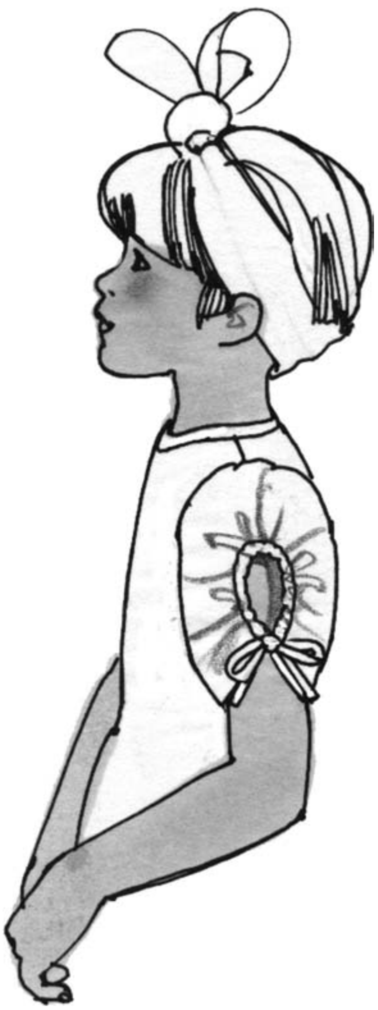


Figure 1

- Trace half sleeve 1 inch below biceps. Label X.
- Plot the sleeve design lines. Label cap A. C is marked at biceps level. B is one-half of A–C. Cap ease, less 1/4 inch, is removed from the sleeve. The slight curve between points B and C allows the arm to show through. Mark and cut slash lines, as illustrated. Trim sleeve from X to C.

Figure 1

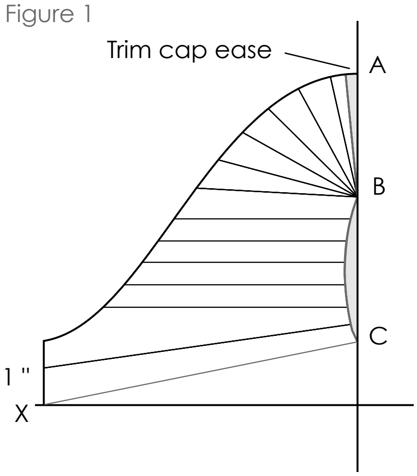

Trim cap ease
A
B
C
1 "
X

Figure 2

- Draw a square line and spread the slashed lines to fit the square line. The letters A, B, and C indicate their locations on the pattern.

Figure 2

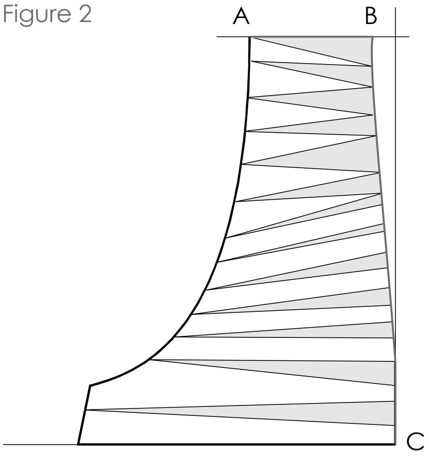
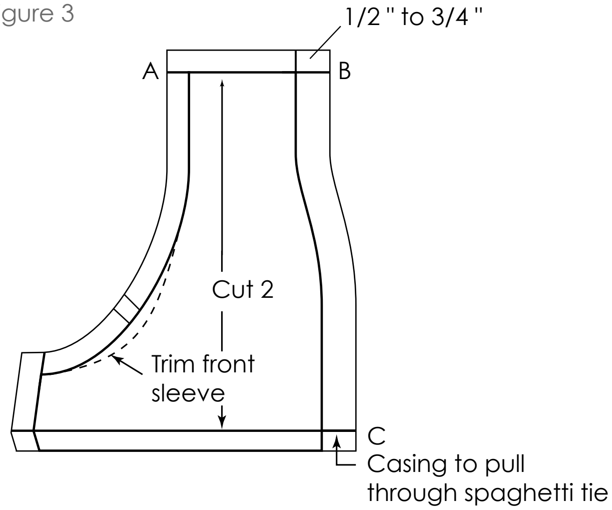


Figure 3

- Add seam allowances.
- Trace two copies of the sleeve and trim the curve of the front sleeve. Note the locations of the letters and their relationship to the plotted pattern (Figure 1).
- Complete the pattern and test fit. Stitch A–B together.

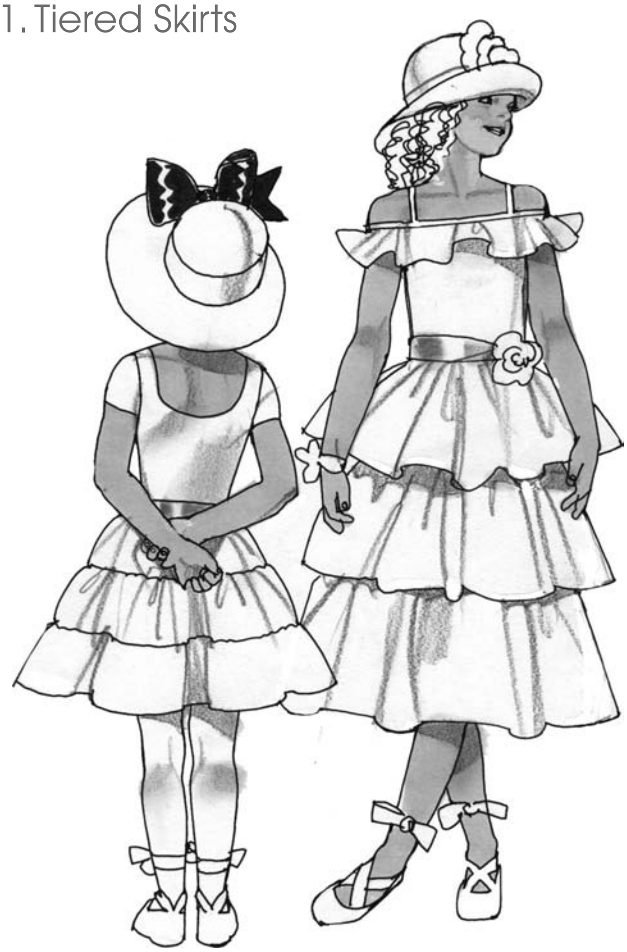
Figure 3


1/2 " to 3/4 "
A
B
Cut 2
Trim front sleeve
C
Casing to pull through spaghetti tie

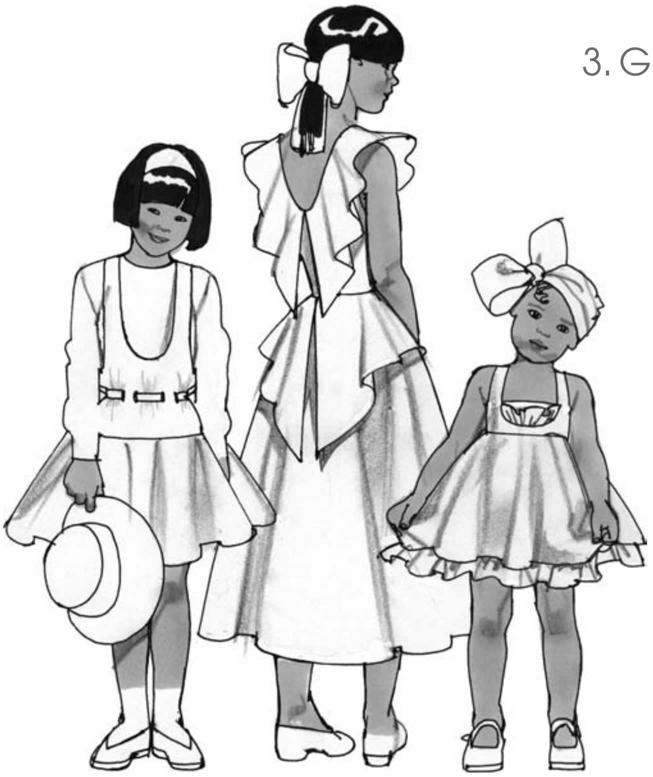
SKIRTS

Skirts for sizes 3 to 6X may be belted without elastic. However, waist bands generally have elastic inserted either across the back section or completely around the waist band.

1. Tiered Skirts



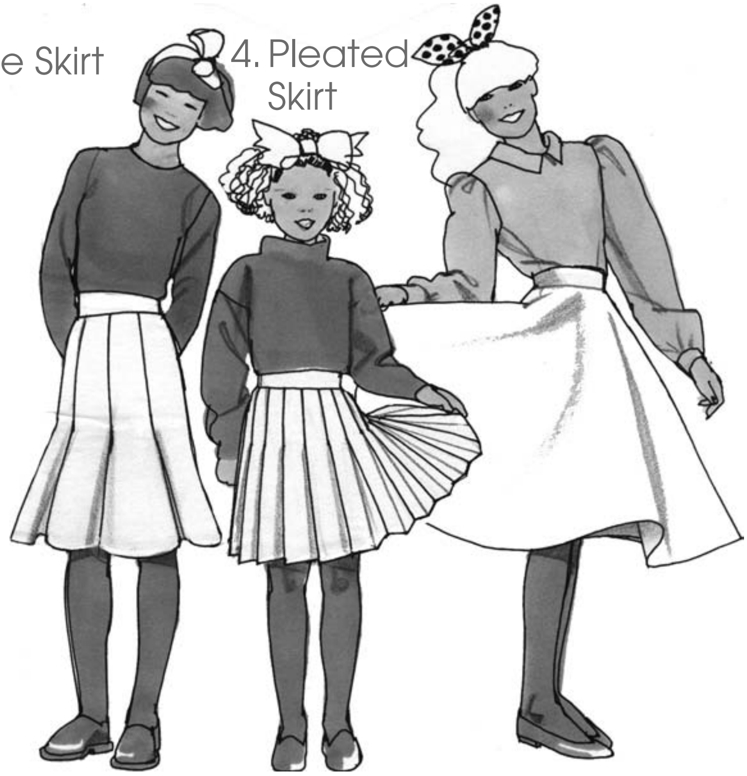
2. Cascades/Partial Circles



3. Gore Skirt

4. Pleated Skirt

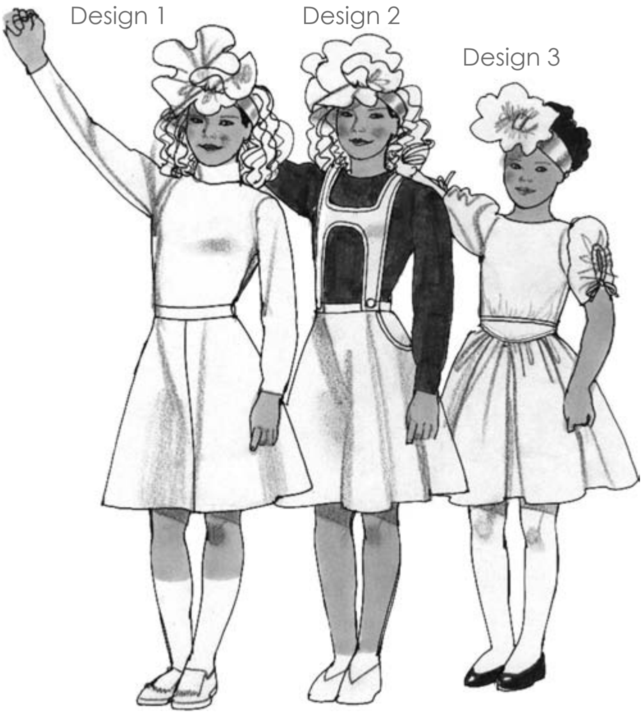
5. Full Circle Skirt



Flared Skirt

Design Analysis: Designs 1 and 2

Design 1 is a flared gored skirt. Design 2 is a basic flared skirt (like Design 1 but without a center seam). Design 3 is a gathered skirt with a stylized waist band. Designs are appropriate for sizes 7 to 14.



Flared Skirt Draft—Design 1

Figures 1 and 2

- Figures 1 and 2 illustrate the waist darts closed, transferring excess to the hemline sweep, with at least 1 1/4 inches added to the side seam for an A-line silhouette.
- Complete patterns for a test fit, either as a gored skirt with center front and center back seams or as a basic flare. Cut on fold.

Figure 1

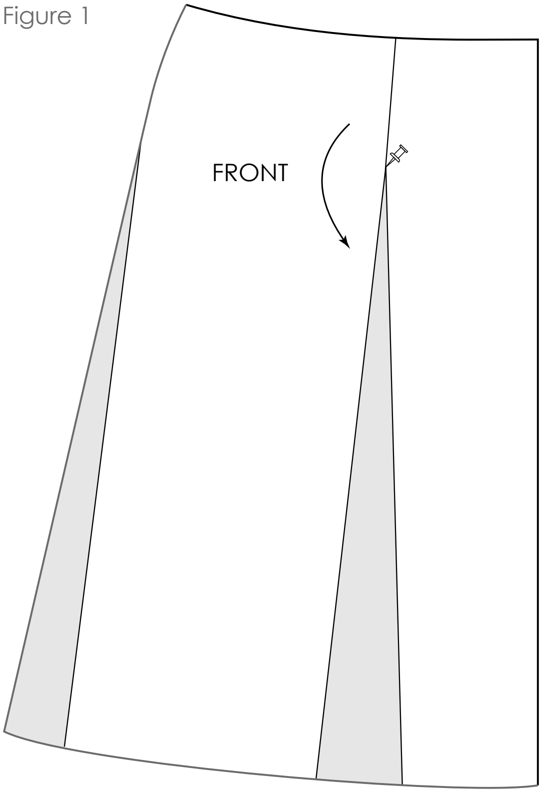
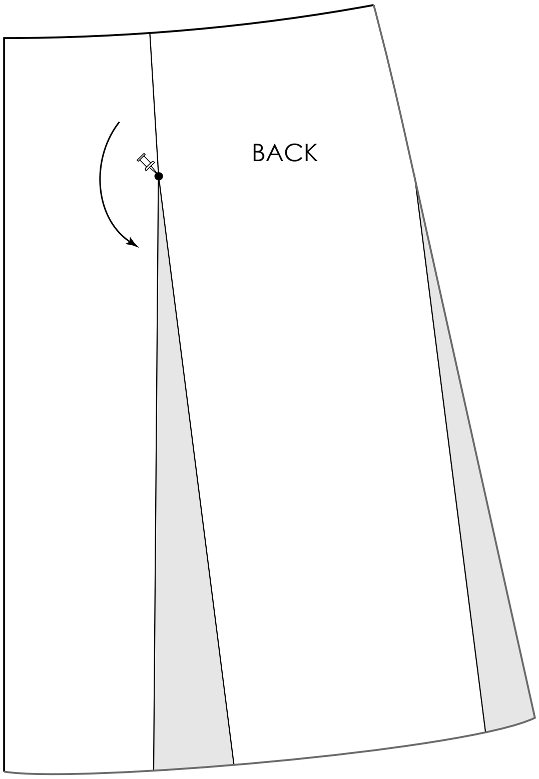


Figure 2



Gathered Skirt with Stylized Waist Band

Design Analysis: Design 3

Waist bands that are designed below the waistline of the figure must take the design shape from the skirt before the pattern is manipulated. The fullness of the skirt is equal at the waist and hem (dirndle).

Skirt Draft

Figure 1
- Plot the styleline on the basic pattern and cut from paper.

Figure 2
- On fold of the paper, trace waist band and trace a copy of the skirt curve section to the band.

Figure 1

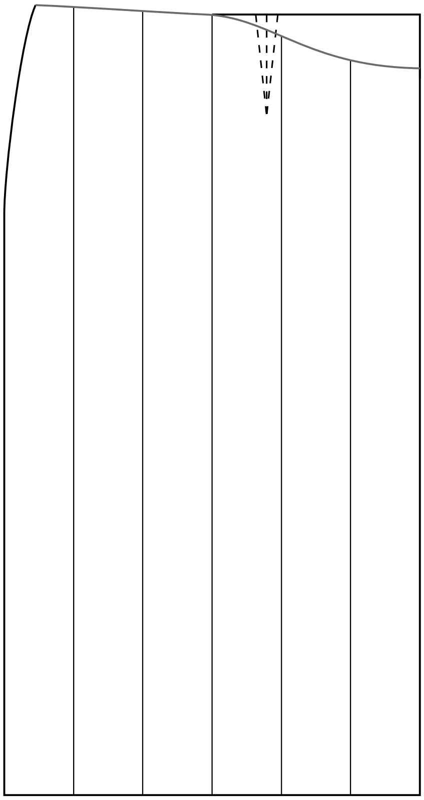


Figure 2

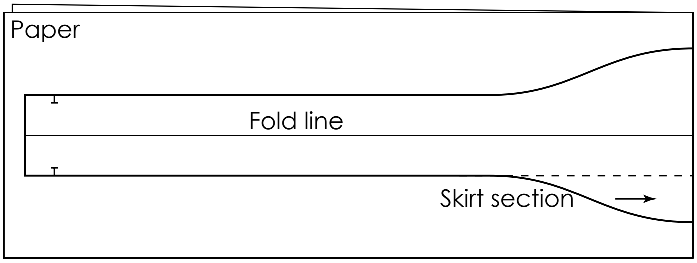
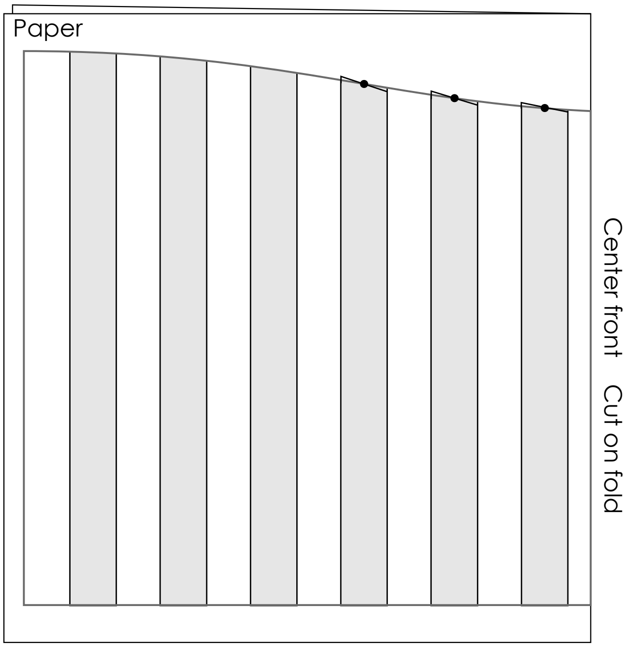


Figure 3
- Slash and spread to the desired amount of fullness. Follow the centers of the spread sections when drawing the waistline of the skirt.
- Repeat the process for the back skirt, without the curved line of the front pattern.
- Complete the pattern for a test fit.

Figure 3



Yoked Circular Skirt

The skirt is designed for sizes 3 to 6X and 7 to 14. Elastic can be inserted into the waist band, leaving the back dart excess to be gathered into the band.

Design Analysis

The yoked skirt is designed and separated from the skirt draft before the lower skirt section is manipulated.

Yoked Skirt Draft

Figure 1

- Trace the basic skirt front.
- Plot the pattern, using the illustration, design, size, and height of the model as a guide. Skirt can be any length desired.

Figure 1

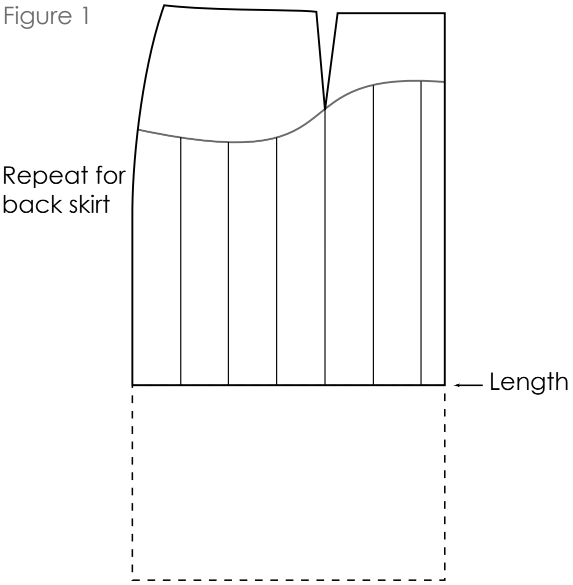
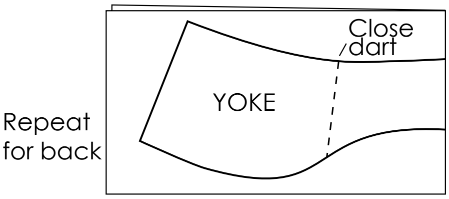

Repeat for back skirt
Length

Figure 2

- Cut yoke from the pattern and trace on fold of the paper, closing the waist dart. (Do not close the dart if elastic is used in the waist band.)

Figure 2


Close dart
YOKE
Repeat for back

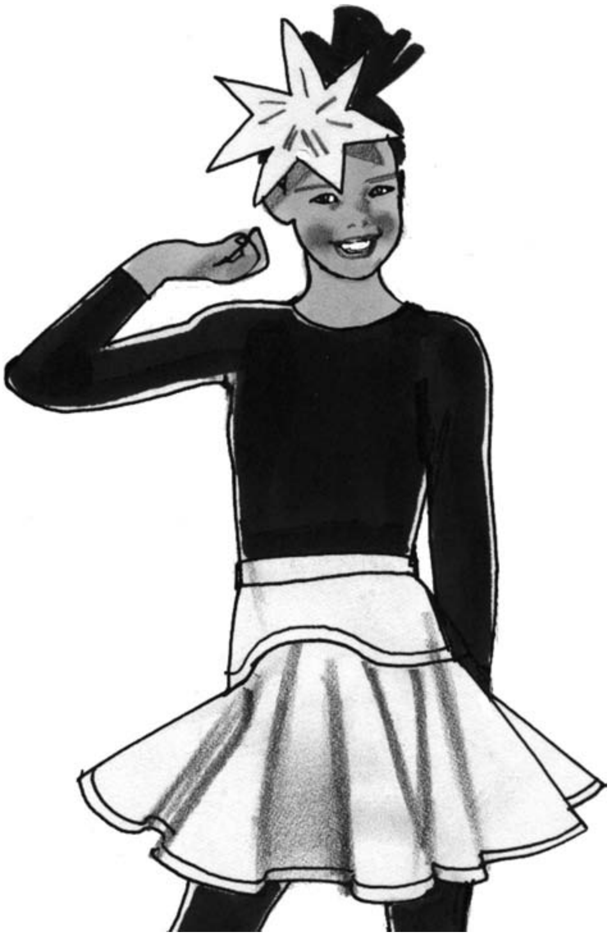
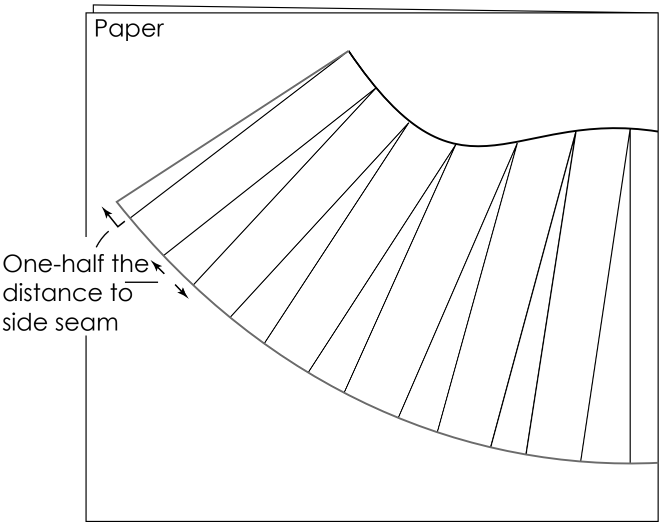


Figure 3

- Cut slash lines, place the skirt on fold of the paper, and spread for hemline sweep. Add to the side seam, as illustrated.
- Repeat for the back skirt.
- Complete the patterns for a test fit.

Figure 3


Paper
One-half the distance to side seam

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

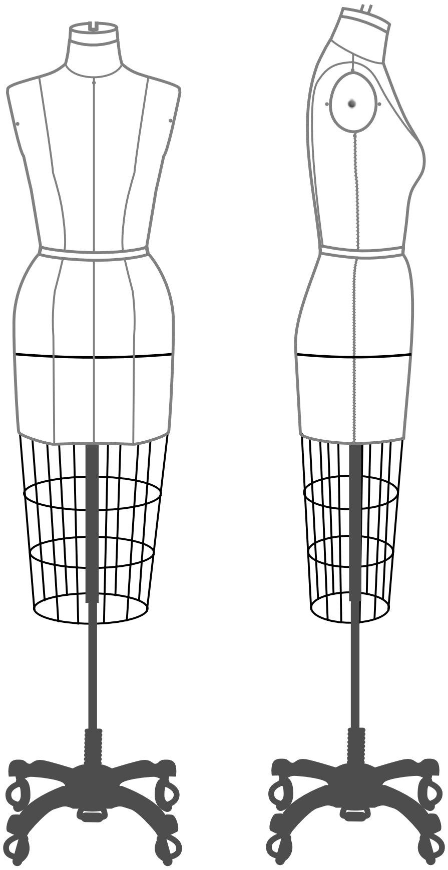
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

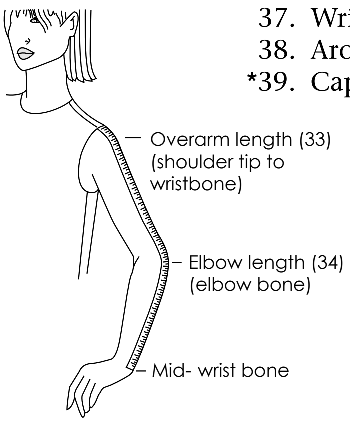
Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

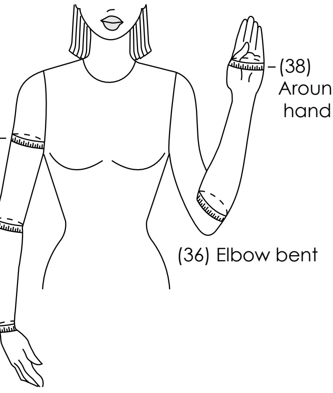
Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____

Length


Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone

Circumference



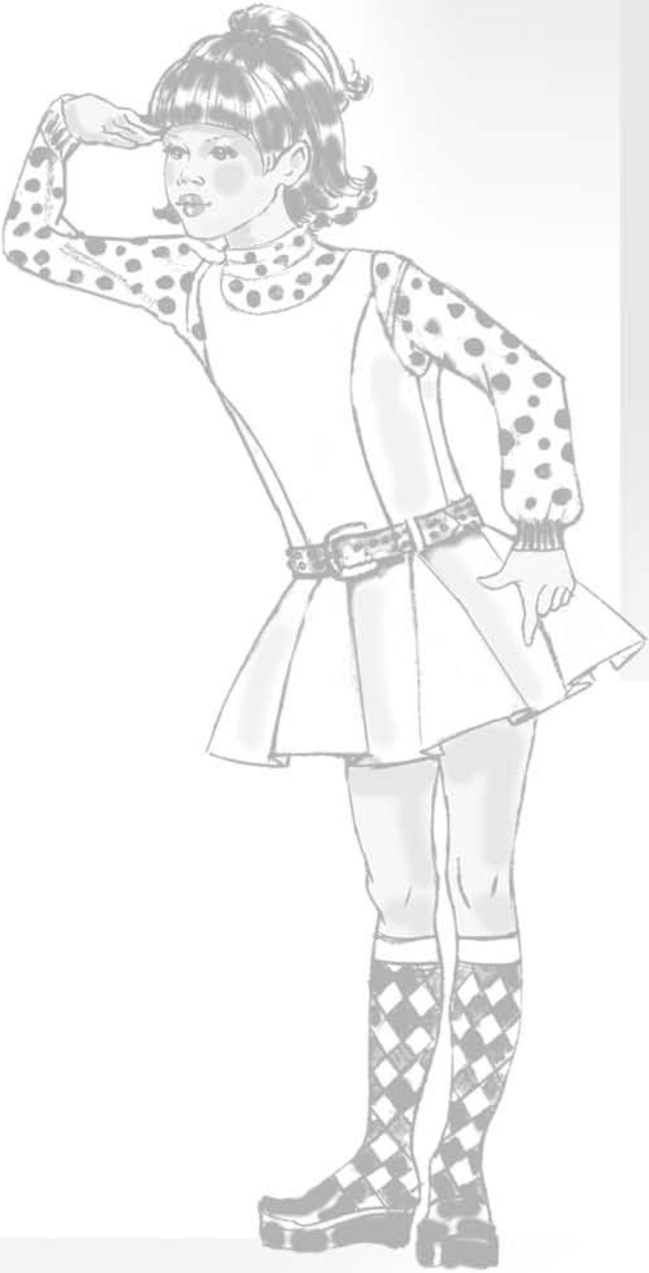
*Measuring the Arm

Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

Dresses and Jumpers

THE SHIFT FOUNDATION—3 TO 6X AND 7 TO 14
  - Shift Draft
  - Princess Styleline
  - Princess Draft
  - Darts and Dart Equivalents
  - Empire with Flare
  - Empire Draft

TENT FOUNDATION
  - Tent Draft
  - Bib Tent—A Variation
  - Bib Tent Draft
  - Torso Jumper
  - Torso Jumper Draft



From Chapter 34 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

THE SHIFT FOUNDATION—3 TO 6X AND 7 TO 14

The shift draft is based on the basic bodice patterns. The shift foundation is the base for designs such as the princess, empire, and torso-length dresses, to which gathered or pleated skirts are attached.

Shift Draft

Figures 1, 2

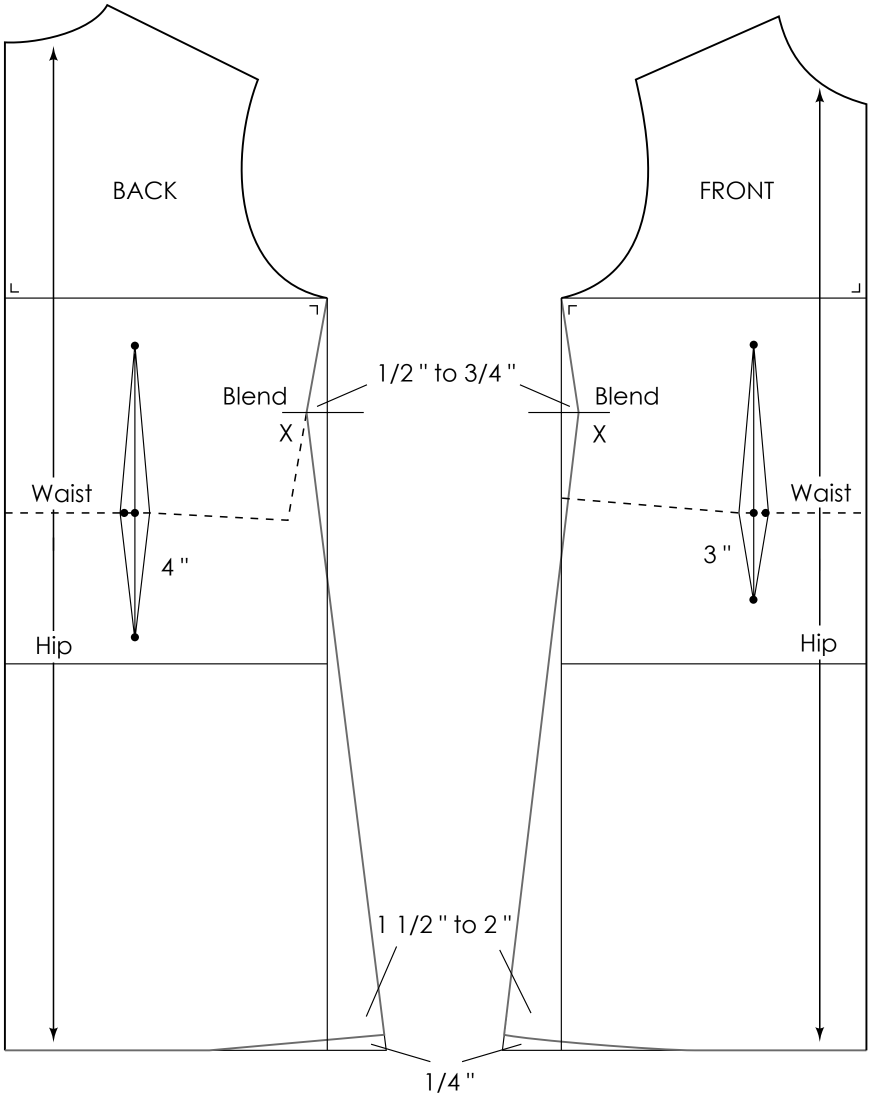
- Trace front and back patterns and all markings, including darts.
- Extend center front line to the desired length and square across and up to the armhole.
- Square across the back pattern to the armhole and square down equal to side length of the front.
- Square across the hem and up to center back.
- Mark a point 1/2 to 3/4 inch in from mid-point of the side seam. Label X.
- Add 1 1/2 to 2 inches out at the side seams for an A-line silhouette. Mark a point 1/4 inch up and draw a curved hemline.
- Draw side seam from hem to Point X, and connect to the armhole, as illustrated. Blend at X.
- Cut the front shift from paper.

Darts. Extend lines through center of the darts to length indicated. Draw dart legs to waistline.

- Cut the patterns from the paper.
- Complete the patterns for the test fit.
- The basic sleeve completes the pattern set.

Figure 1 SHIFT FOUNDATION

Figure 2 SHIFT FOUNDATION



Princess Styleline

The princess styleline is an appropriate foundation for sizes 3 to 6X and 7 to 14.

Design Analysis

The princess styleline (to mid-shoulder or to mid-armhole) is a popular base for a variety of designs. (Decrease the dart intake to half the amount for such designs.) Flare can be added to each panel (from the waist) or to any point along the goreline. Godets are also a source of flare. Flare is part of the shift pattern. Add additional flare to the side seams, to balance the design, if necessary. Designs 1 and 2 are but a few of the ideas that can be developed from the princess pattern.

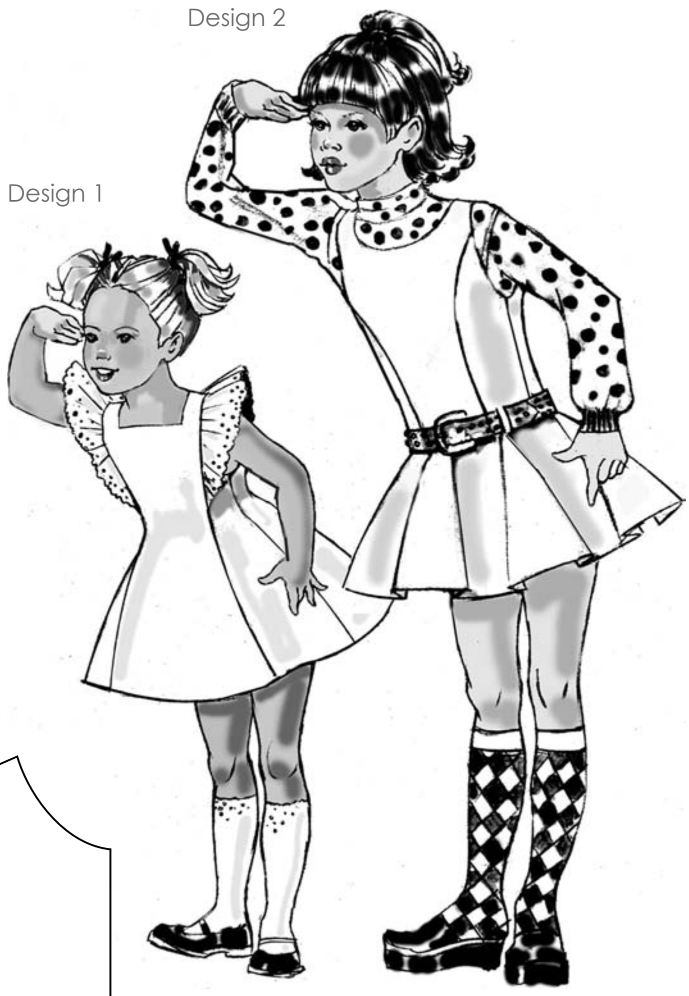


Figure 1

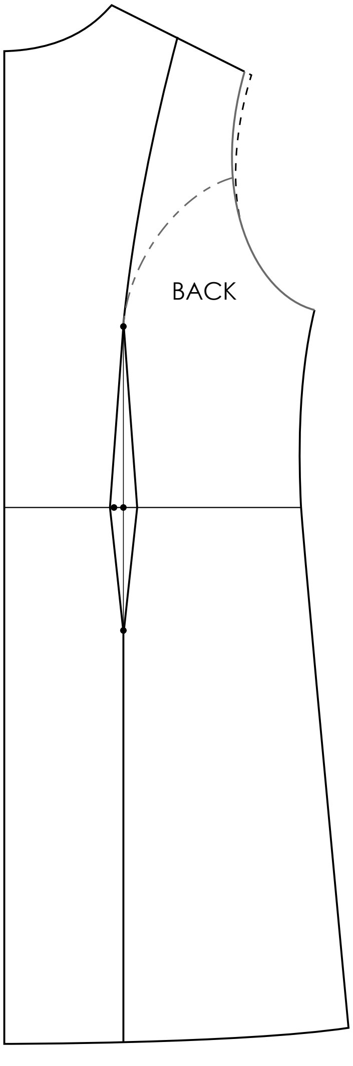
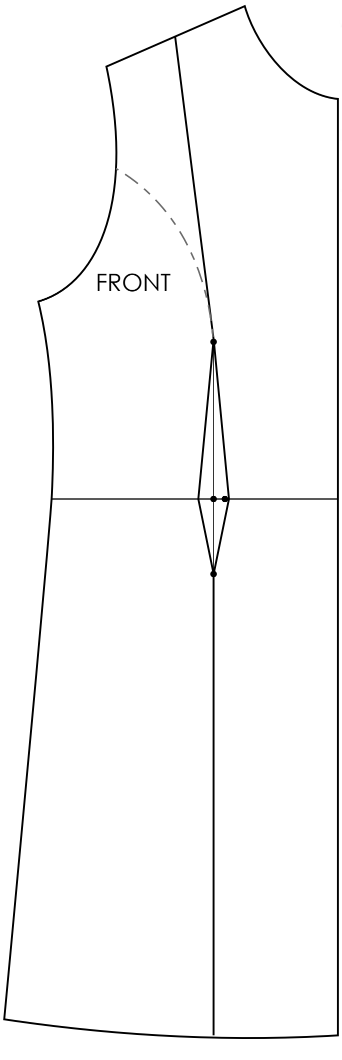


Figure 2



Princess Draft

Figures 1, 2

- Trace the front and back shift patterns.
- Plot the style from the mid-shoulder and the mid-armhole (uneven broken lines). The styleline touches the dart point.
- Draw lines from the dart points to hem, parallel to front and back center lines.

Figures 3, 4, 5, 6

- Cut patterns apart along princess line. The waist dart is cut out.
- Trace the patterns and add flare (width as desired). The flare is equal to each side of the front and back panels. Add to the side seam to balance the design, if necessary.
- Blend line through the waist area for a loose fit. If a closer fit is desired, follow the dart legs.

Figure 3

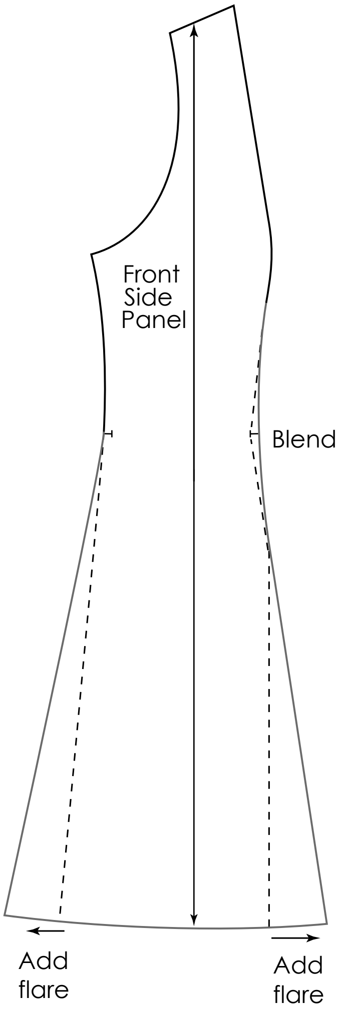

Front
Side
Panel
Blend
Add flare
Add flare

Figure 4

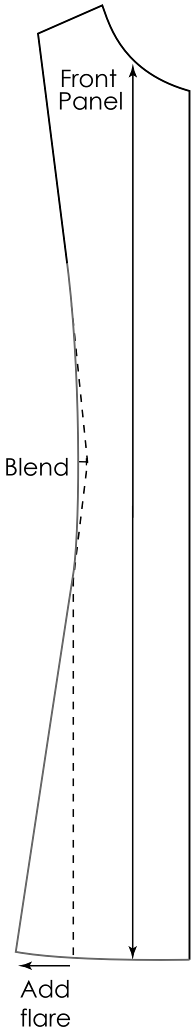

Front
Panel
Blend
Add flare

Figure 5

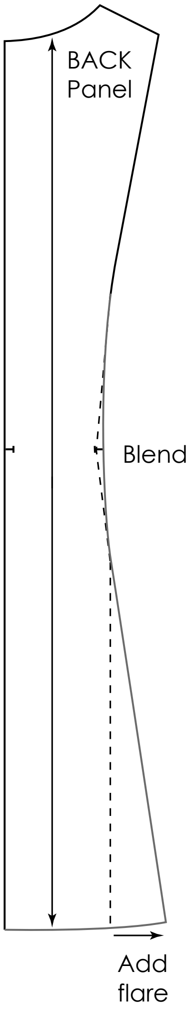
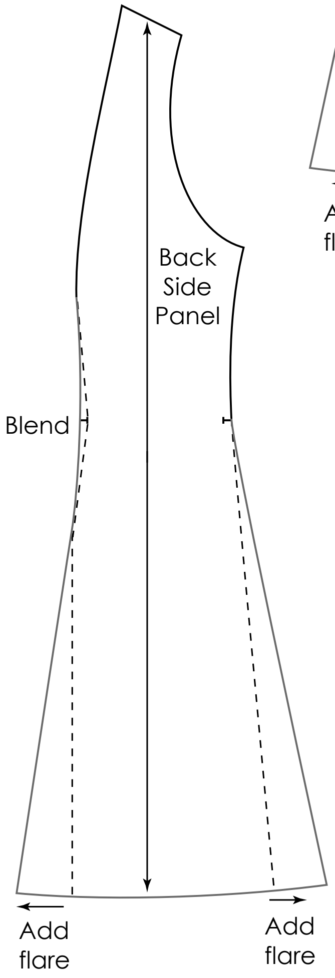

BACK
Panel
Blend
Add flare

Figure 6

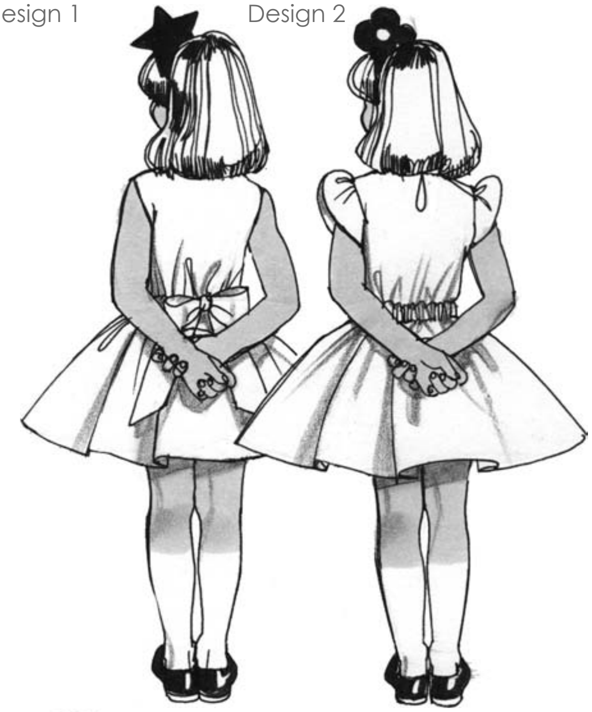

Back
Side
Panel
Blend
Add flare
Add flare

Darts and Dart Equivalents

The basic front and back bodice patterns contain darts. Darts, which provide excess, are best used in forms other than stitched darts for children sizes 3 to 6X. The dart excess can be controlled with elastic or ties to help define the nebulous area designated as the waistline, if a waistline must be defined (see Designs 1 and 2).

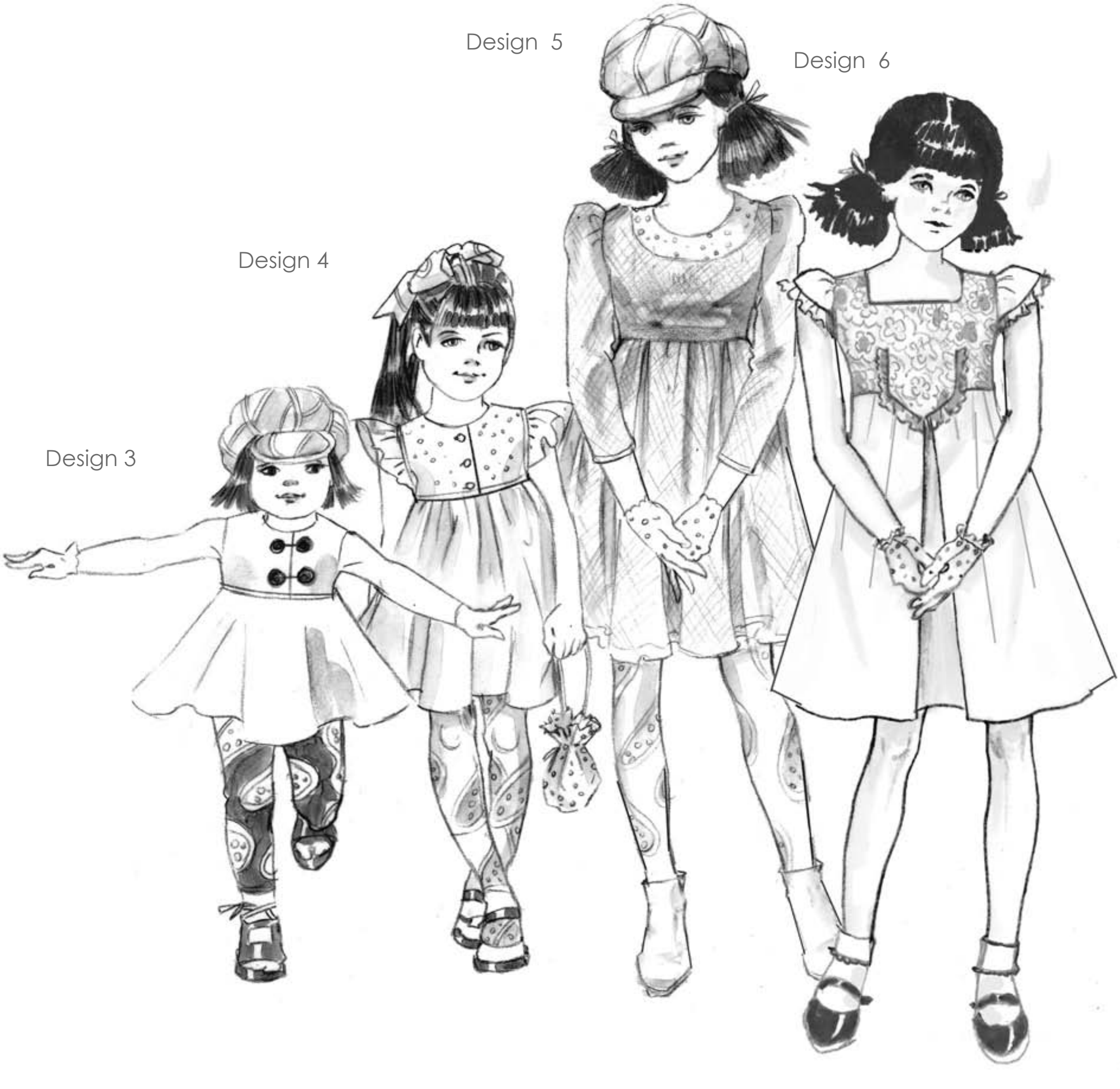
Yoke stylelines and those that rest relatively near the armholes (such as the empire) provide the greatest freedom, the best proportion, and a high degree of flexibility in fit without the need for darts (see Designs 3 and 4). Darts are primarily used in designs to help define the developing bustline for girls sizes 7 to 14 (see Design 5 and Design 6).

Empire with flare and leg-o-mutton sleeve follows.



Design 1

Design 2



Design 5

Design 6

Design 4

Design 3

Empire with Flare

The shift foundation is the base for designs with stylelines passing under the bust line and for those not having a waistline seam. The bodice darts are generally not stitched for empire designs for sizes 3 to 6X (see previous page, Designs 3 and 4).

Design Analysis

Designs 5 and 6 are for sizes 7 to 14. The empire styleline is plotted through an open dart. Slash lines are marked on the lower pattern, where flare and a pleat give the skirt its fullness. A leg-o-mutton sleeve completes the design.

Empire Draft

Figures 1 a, b Front

- Trace the front shift pattern. Mark darts.
- Plot the pattern, using illustration, design, size, and height of the model as a guide.

Empire Styleline

- Mark bust point (not dart point) and mark half the dart length to the waist. Label X. Square a guideline from center front to side seam, touching X.
- Draw the empire curved styleline about one-third the distance between neck and waist. Start at the center front up to the dart leg X. Continue the empire styleline from the other dart leg (at the same length distance), curving the styleline to side seam. (A–B) Take in 1/4 to 1/2″ at the side (a).
- Measure out 1/8″ from each dart leg at the empire styleline (closer fit) and redraw dart legs to dart point.
- Mirror bust dart below styleline (broken lines).

Back

- Trace the back pattern and trim 1/4″ (eliminating shoulder ease) from shoulder tip, blending to armhole curve.
- Plot the pattern as illustrated (b).
- C–D = A–B (front pattern).
- Add a 3/4 inch extension at center back.
- Cut and separate front and back patterns.

Figure 1a

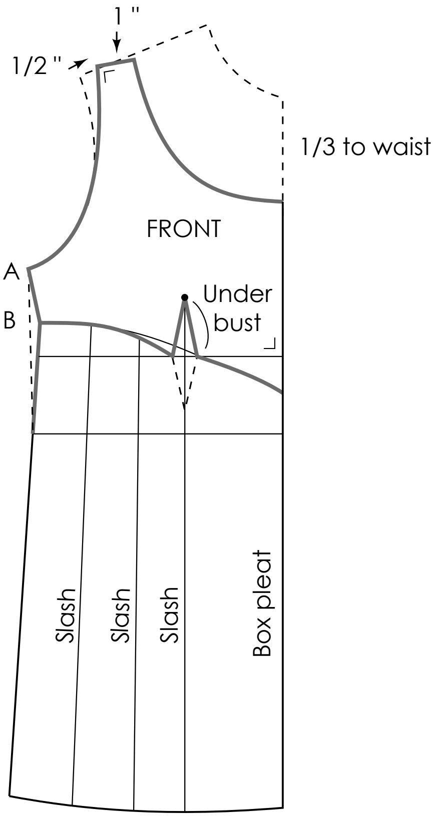
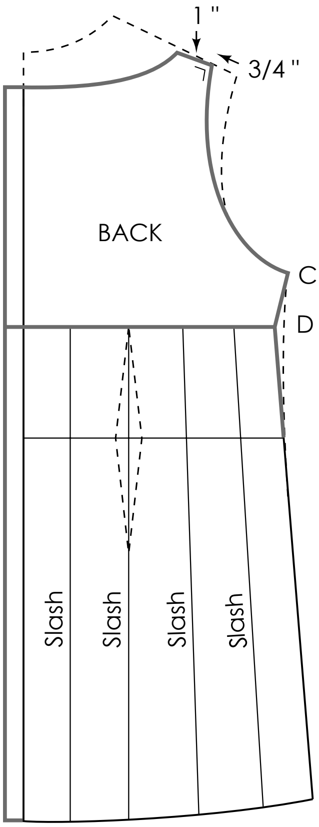


Figure 1b



Figures 2 c, d

- Trace the front and back empire bodice. The shaded area is a facing guide.

Figure 2c

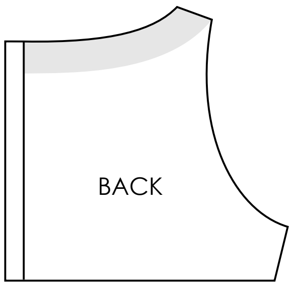


Figure 2d

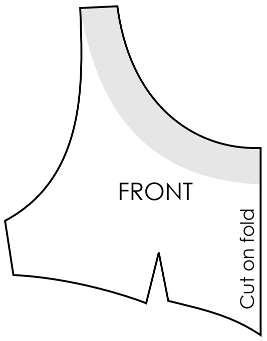


Figure 4

- Prepare paper for the folded pleat. Square a line representing the waist and hemline. Draw a center front line B. Measure out 1 inch from B line and 2 1/2 inches at the hemline. Draw connecting lines, as shown. Fold on the C line to A line.
- Place the lower pattern on the foldline of the folded pleat. Trace to the first dart leg and at the hemline.

Figure 5

- Remove the skirt and slash. Return the pattern. Close the dart leg and secure slashed pieces. The open space A–B can be repeated at each slashed line with half the amount added to the side seam (C–D equals half of A–B). Trace the remaining outer lines of the slashed pattern.
- Use tracing wheel across the folded pleat and add 1/2-inch seams at the empire styleline.
- Sweep of the back skirt equals the front skirt without the pleat (not illustrated).
- Complete the patterns and test fit.
- Add seams to all patterns.

Figure 4

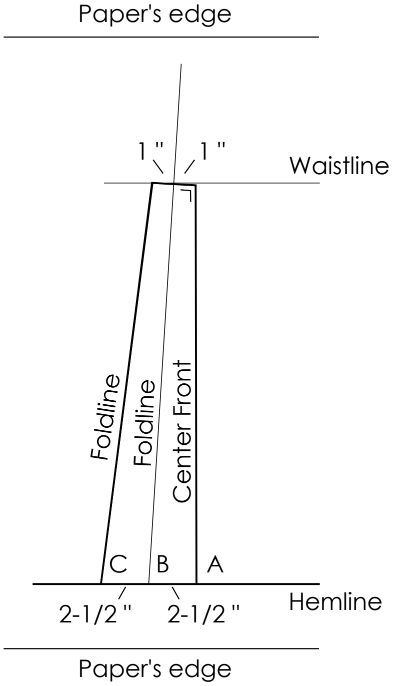

Paper's edge
1 "
1 "
Waistline
Foldline
Foldline
Center Front
C
B
A
Hemline
2-1/2 "
2-1/2 "
Paper's edge

Figure 5

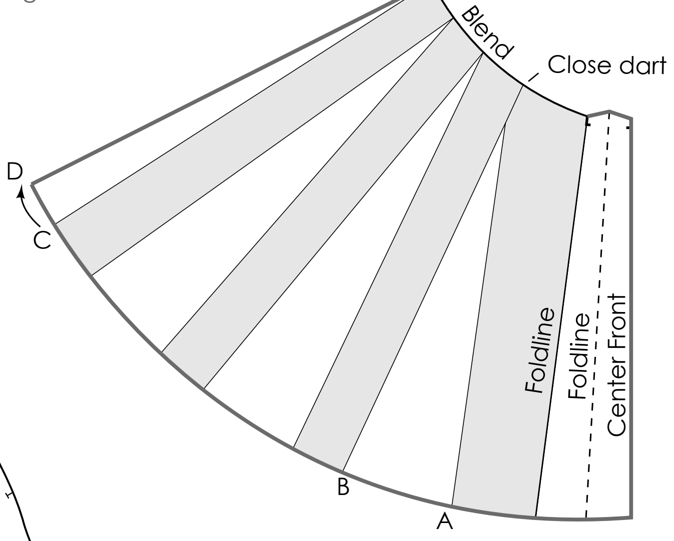
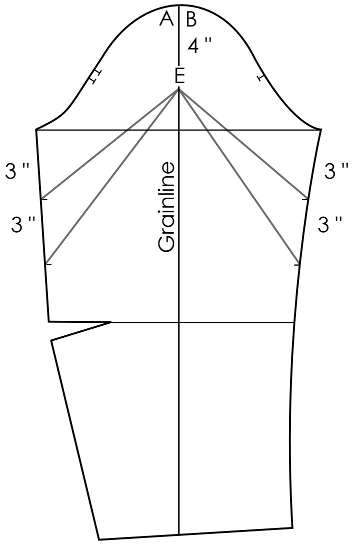
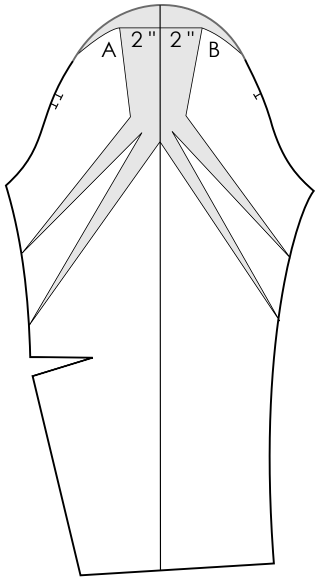

FRONT
Blend
Close dart
D
C
Foldline
Foldline
Center Front
B
A

Figure 6a


A
B
4 "
E
3 "
3 "
3 "
3 "
Grainline

(a)

Figure 6 b



(b)

Figures 6 a, b

Leg-of-Mutton Sleeve

- Trace the basic sleeve to preferred length and draw slash lines (a).
- Cut and slash the lines. Spread, as shown (b).
- Retrace and add seams.

TENT FOUNDATION

The tent foundation is appropriate for girls' sizes 3 to 6X and 7 to 14. The basic tent is based on the shift foundation.

Tent Draft

Figure 1

- Trace the front and back shift. Mark dart for reference of the bust point and waist level for use as guidance for possible styleline placements.
- Plot slashes from hem to curve of the armhole.
- Cut slashes to, but not past, curve line of the armhole. Spread the hem from 3 to 5 inches.
- Retrace and add flare to the side seam that is one-half, or one-third of the spread area. Draw the side seam, blending just above the waistline.
- Repeat instructions for the back pattern.

Figure 1

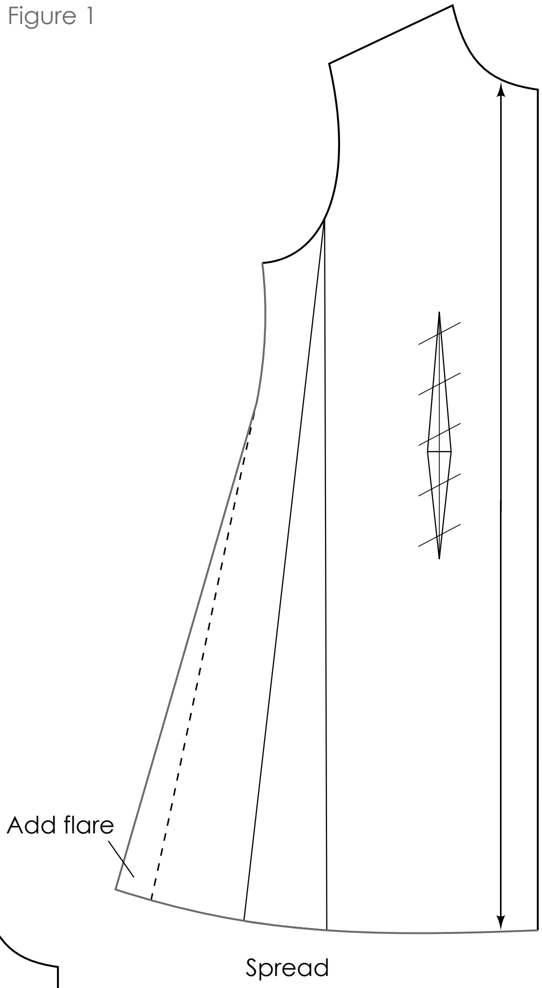


Figure 2

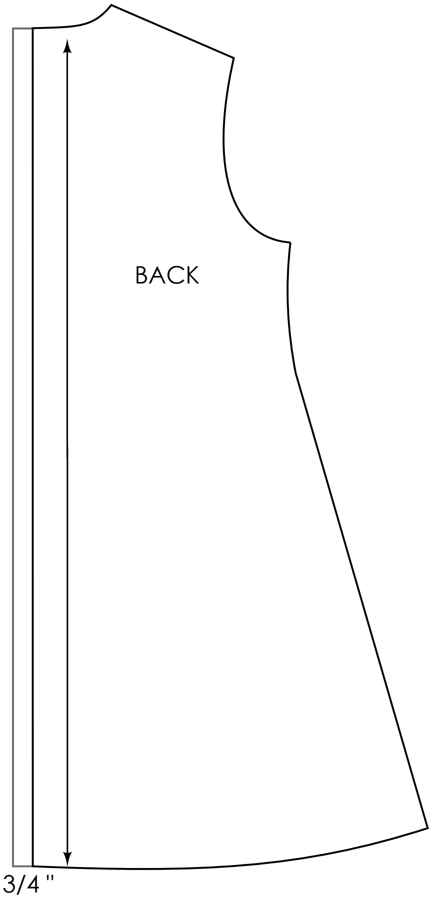
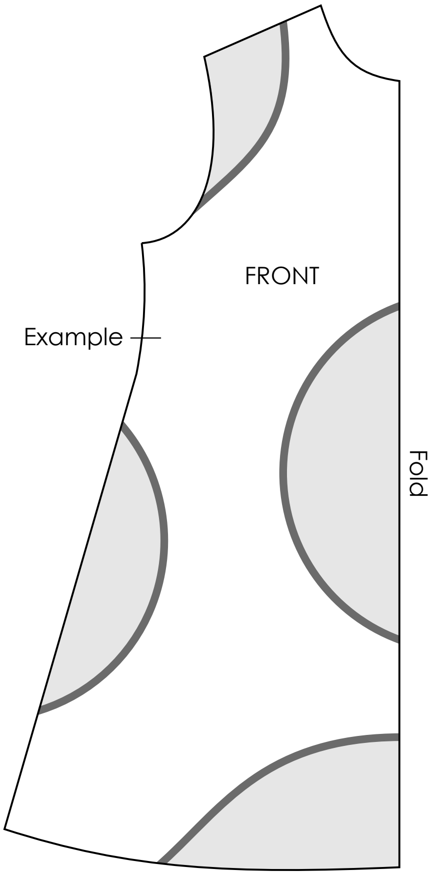


Figure 3



Front and Back Tent Patterns

Figures 2, 3

- Add seams and extend the center back, 3/4". Cut and test fit.

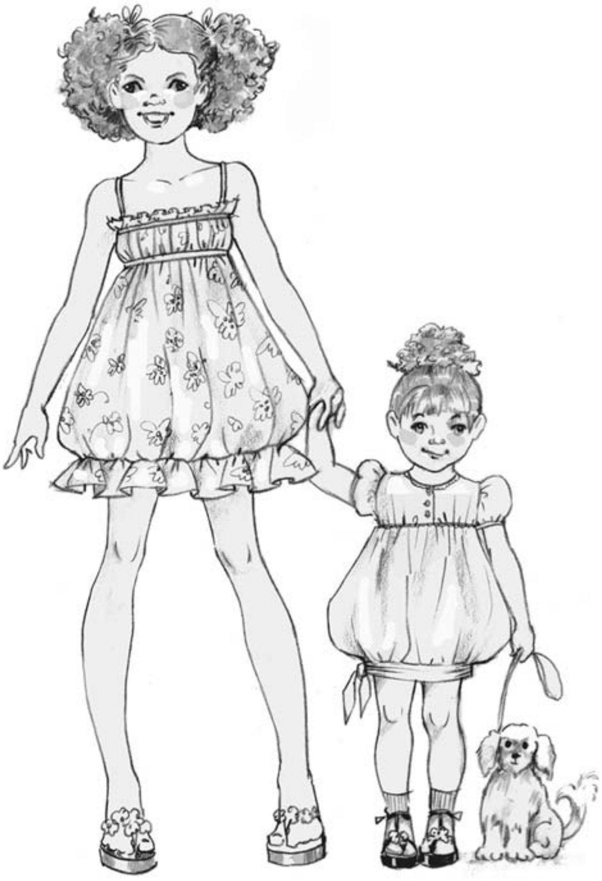
Assignment Suggestion

Create a block design for the front and back tent foundation. An example is shown, but the blocking can be varied: color circles, rectangles, abstract shapes, appliqués, tie dye, lace insets, mixed fabric textures, hand painted designs, etc. Sleeves and collars can be added. Display the tent designs for classroom discussion. What made each design work and what could be improved?

Bib Tent—A Variation

Design Analysis

Fullness is gathered along the upper bust line, under the bust, and parallel above the hemline. Gathers fit to the model's body except at the hemline, where gathers are less to allow for an A-line silhouette. A tape secures hem gathers.



Bib Tent Draft

Figure 1

- Trace the front and back tent foundation patterns.
- Plot stylelines (in blue) on both the front and back.
- Choose skirt length and the gather guideline.
- Cut shoulder straps 1 1/2″ × 22″. Trim to fit.

Front

A–B = 3″ more or less, and square across the pattern. Label C.

B–D = B–C.

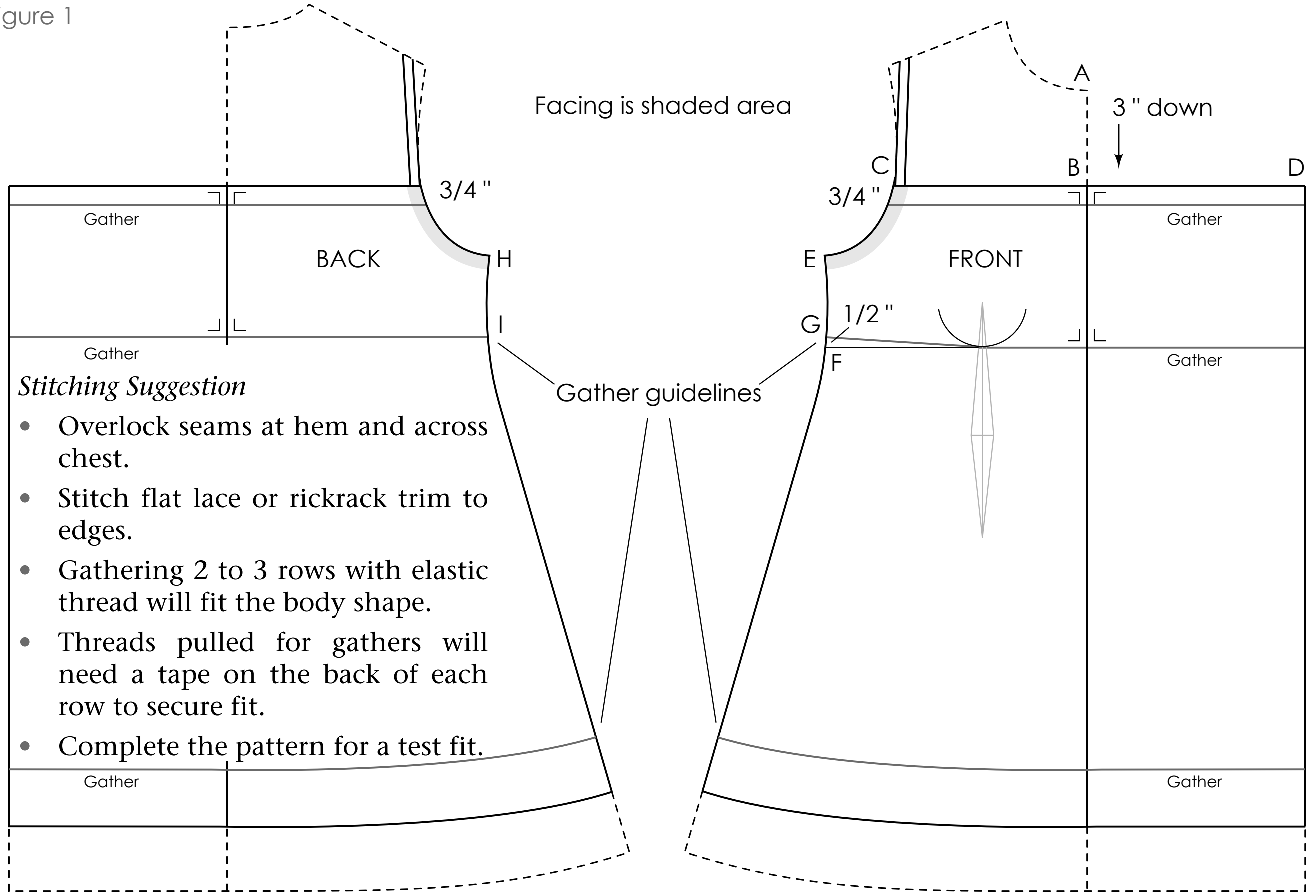
E–F = Aligned with under-bust location. Square a line across the pattern.

F–G = 1/2″. Draw line to dart leg.

Back

H–I = E–G. Square from center back to this mark.

Figure 1


Facing is shaded area
A
3 " down
B
D
C
3/4 "
3/4 "
Gather
Gather
BACK
H
E
FRONT
I
G
1/2 "
F
Gather
Gather
Gather guidelines
Gather
Gather

Stitching Suggestion

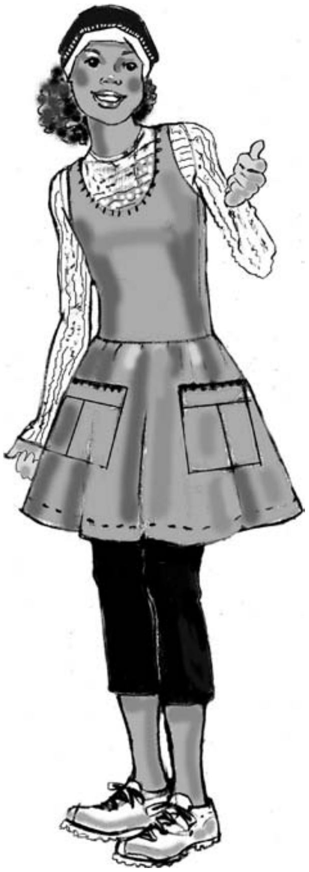
- Overlock seams at hem and across chest.
- Stitch flat lace or rickrack trim to edges.
- Gathering 2 to 3 rows with elastic thread will fit the body shape.
- Threads pulled for gathers will need a tape on the back of each row to secure fit.
- Complete the pattern for a test fit.

Torso Jumper

The dartless pattern is used as a base for dresses not having a waistline. It is appropriate for sizes 3 to 6X and 7 to 14.

Design Analysis

Design has low-cut armholes and neckline. The back is based on the front pattern. If the necklines vary, trace the front pattern to design the back neckline.



Torso Jumper Draft

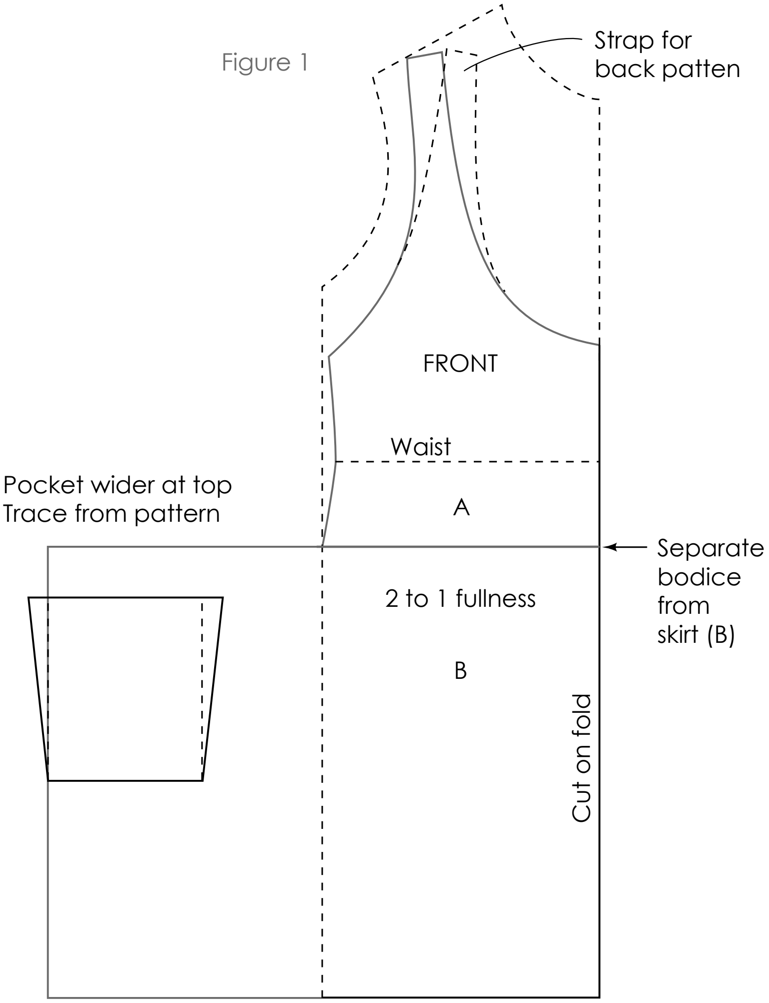
Figure 1

- Trace the dartless front pattern.
- Plot the pattern, using the illustration, design, size, and height of the model as a guide. Follow blue lines.
- Mark torso and square across.
- Add width to the skirt for gathers, as desired.
- Cut patterns from paper and separate the pattern parts (A for upper torso and B for skirt).

Back

- Retrace front torso pattern for back jumper, shifting the shoulder strap toward the back (broken lines).
- Complete the pattern for a test fit.

Figure 1


Strap for back patten
FRONT
Waist
A
Pocket wider at top
Trace from pattern
Separate bodice from skirt (B)
2 to 1 fullness
B
Cut on fold

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Special Information

Set form to desired height and measure the following:

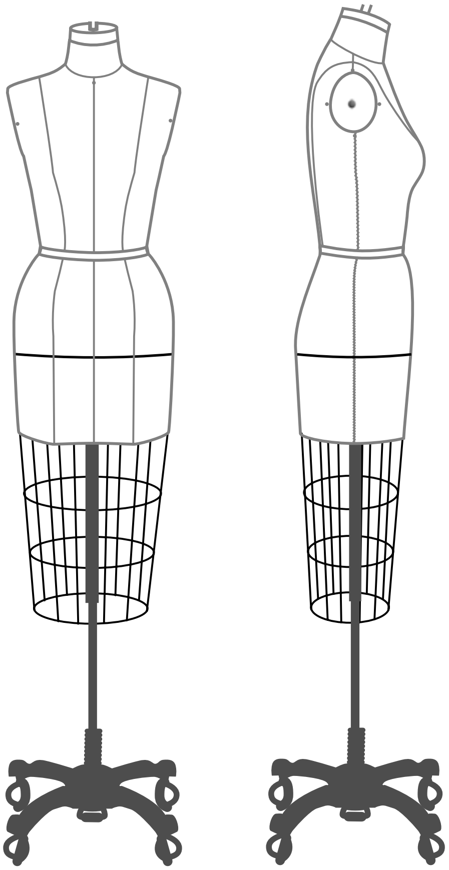
C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

*Measuring the Arm

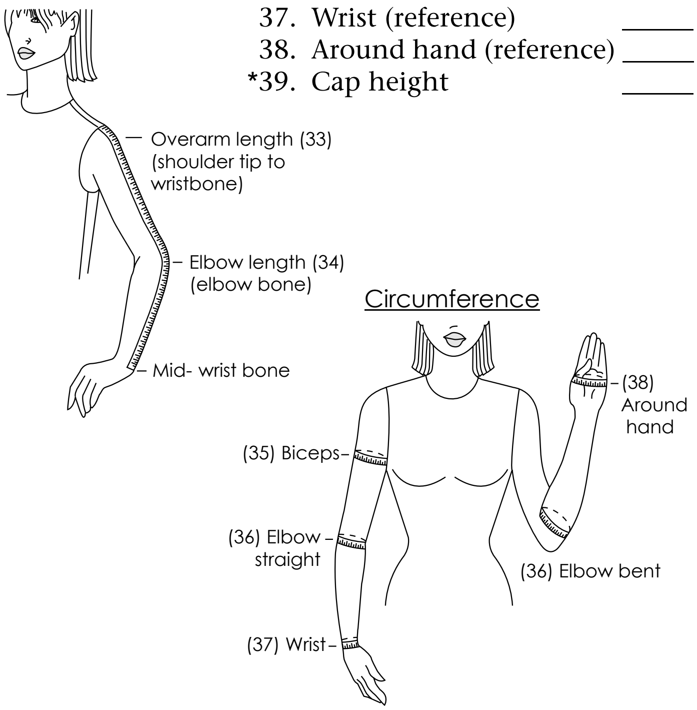
Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____


Length
Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone
Circumference
(35) Biceps
(36) Elbow straight
(37) Wrist
(38) Around hand
(36) Elbow bent

Tops

DARTLESS TOP FOUNDATION
    The Dartless Draft
BASIC SHIRT AND SLEEVE FOUNDATION
    Shirt Draft
    Shirt Sleeve Draft
SELF-EVALUATION TEST
OVERSIZED SHIRT AND SLEEVE
    Oversized Shirt Draft
    Oversized Shirt Sleeve Draft
KNIT FOUNDATION AND SLEEVE
    Knit Draft
    Knit Sleeve Draft
    Modified Knit Top
RAGLAN FOUNDATION
    Raglan Draft
JACKET AND COAT FOUNDATIONS
    Basic Jacket and Coat Draft
    Sleeve Draft for Jacket and Coat
    Sleeve Measurement Chart for Jacket and Coat
    Jacket with Notched Collar
    Cardigan Jacket
    Vest
NAVY PEA COAT

From Chapter 35 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

DARTLESS TOP FOUNDATION

The dartless top foundation is appropriate for sizes 3 to 6X and 7 to 14, boys' and girls' sizes. The dartless draft is based on the basic front and back basic patterns. It is an important base in the development of the jacket, coat, shirt, knit top, bodysuit, and leotard foundations.

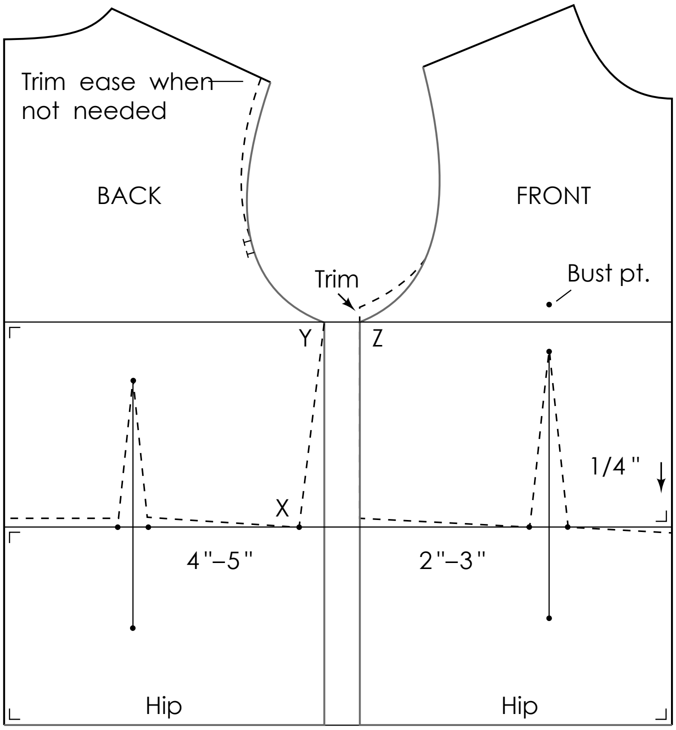
The front armhole is modified so that the waist and hip align at the same level to balance the pattern. This adjustment transfers some excess in the front armhole. Measure the armhole to determine if the cap ease should be increased or decreased. The shoulder ease can be trimmed when not needed. The dartless sleeve and basic sleeve completes the pattern. Test fit the garment.

The Dartless Draft

Figure 1 Front

- Square a line across paper and square up.
- Place the center front waist of the bodice 1/4 inch below square and trace the bodice front. Dot-mark dart legs and bust point.
- Mark the center of the dart leg, and draw a parallel line with the center front 2 to 3 inches below the waist.
- Extend a line down from center front waist to equal hip depth and square a 20-inch line across paper; from this point, square a line up from the hip.

Figure 1 Back and Front



Back

- Place center back pattern on the center line of the paper, with the side waist touching square line. Trace and label X (waist) and Y (armhole).
- Dot-mark the waist dart. Mark dart center and draw a parallel line with center back 4 to 5 inches below the waist.
- Square a line from the center back, touching and passing Y to center front. Label Z at side front seam and draw the armhole. At this point, measure the front and back armhole. Record F _______ B _______.

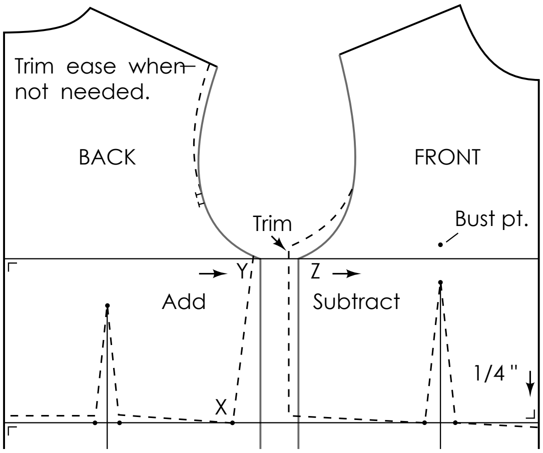
Equalize Armholes

Figure 2

For armholes that differ more than 1/4 inch between them, adjust the side seam by adding half the difference to the lesser armhole and subtracting half from the greater armhole.

- Draw the armhole curve from Z and blend to the armhole.
- Mark the 1/4-inch ease that was added at the back shoulder tip. Trim when the ease is not needed (broken lines).

Figure 2 Back and Front



BASIC SHIRT AND SLEEVE FOUNDATION

The basic shirt is based on the dartless pattern. The shirt is for boys' or girls' sizes 3 to 6X and 7 to 14. The basic shirt is drafted with a yoke. The basic sleeve is modified for the shirt pattern. The basic shirt has a collar and stand, but any collar can be designed.

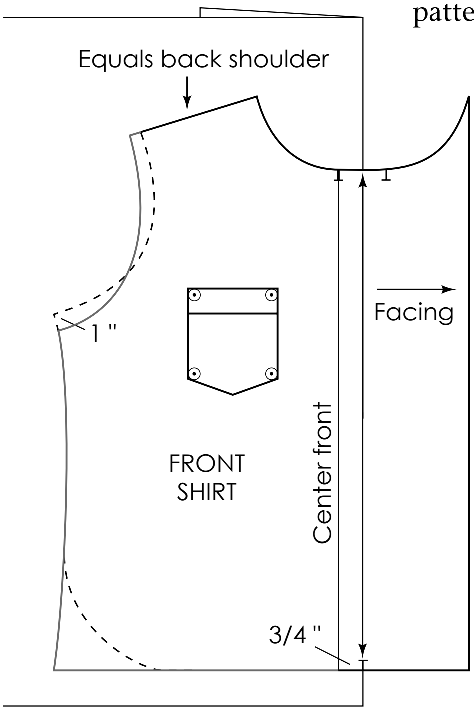
Shirt Draft

Figures 1a, b, c

Front

- Fold paper and draw a line 3/4" in from fold for the extension.
- Place dartless pattern on the center front line and trace the pattern.
- With tracing wheel, trace neck, part of shoulder, and hem.
- Unfold; pencil in neckline. Draw a parallel line from shoulder neck to hem for the extension line. Notch center front, as shown.
- Extend shoulder to equal back shoulder, lower armhole 1/2 to 1". Redraw armhole.
- Draw curved shirt tail, if desired (a).

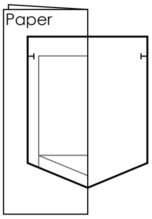
Figure 1a



Pocket

- Draw a pocket on the shirt and make the pattern.

Figure 1c



Back

- Trace the back pattern. Lower armhole to match front armhole and blend.
- Do not cut the back pattern from paper (b).

Figure 1b

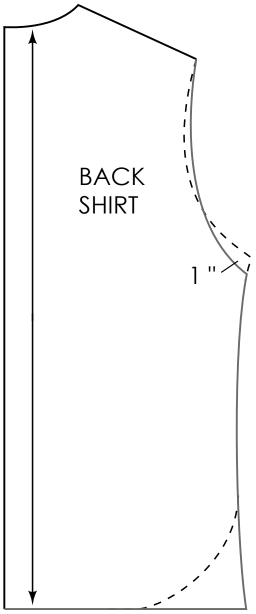


Figure 2 a

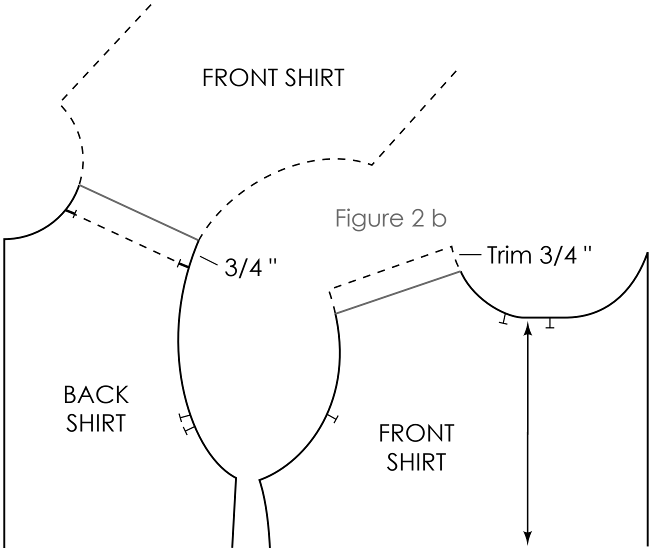


Figure 2 b

Relocating shoulder line

Figures 2a, b

- Place front bodice to the back shoulder and trace 3/4". Remove pattern and connect yoke line to back pattern (a).
- Trim 3/4" from front pattern (b).

Figures 5a, b, c Yoke

- Mark one-fourth of center back to waist and square a line across pattern for back yoke.
- Extend center back 1 inch for back pleat (a).
- Separate patterns (b). Trace yoke on fold (b, c).

Figures 6a, b, c Collar and Stand

- Draw rectangle: width 3/4" and length = back and front neckline plus 3/4" extension (Figure 6a).
- Draw collar on top of collar stand and trace.
- Slash and spread collar (Figure 6c).

Figure 5a

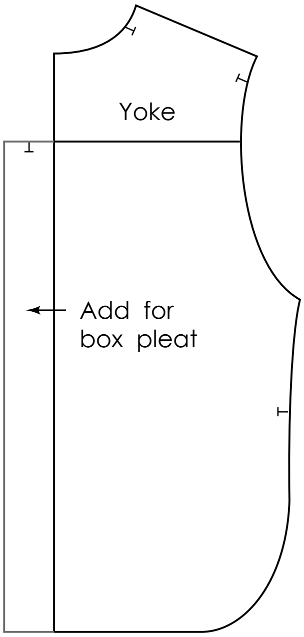

Yoke
Add for box pleat

Figure 5b

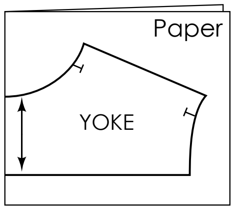


Figure 5c

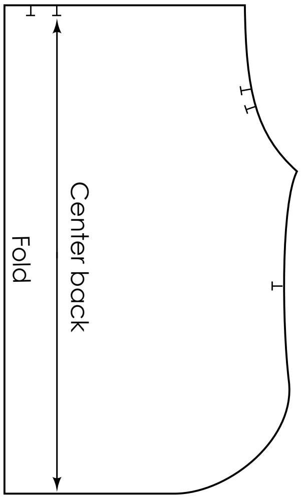

Fold
Center back

Figure 6 a

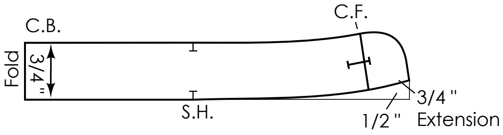

C.B.
C.F.
Fold
3/4"
S.H.
1/2"
3/4" Extension

Figure 6 b

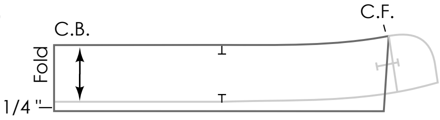
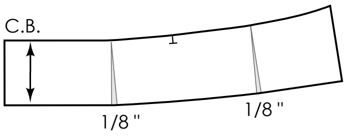

C.B.
C.F.
Fold
1/4"

Figure 6 c



Shirt Sleeve Draft

Figure 1

- Trace the basic sleeve (broken line).
- Measure up 1 inch from the hemline (A) for a cuff allowance. Label B.
- Square a line from center grainline (C) touching B. Continue the line across the pattern so that line C–D equals C–B.
- Draw a parallel line 1/2 to 1 inch up from biceps.
- Place a push pin 1 1/2 inches from sleeve cap E and swing pattern upward until biceps touches the parallel line. Trace the capline and blend.
- Repeat for the front sleeve.
- Draw lines from the lift to hemline of the front and back sleeve.

Sleeve Hemline

- An entry slit is placed one-half the distance of C–D, plus 1 inch (toward the underseam).
- Measure down 1/2 inch and draw a line 2 inches up.
- Draw a hemline curve as illustrated.
- Cut a slit 1/16-inch wide and add a crossbar notch.

Figure 1

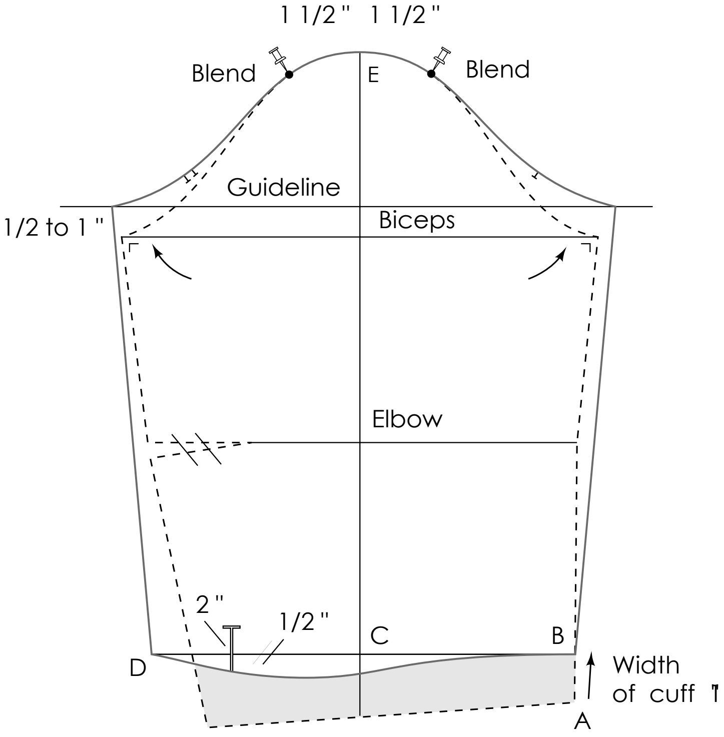

1 1/2"
1 1/2"
Blend
E
Blend
Guideline
1/2 to 1"
Biceps
Elbow
2"
1/2"
C
B
D
Width of cuff
A

Figure 2

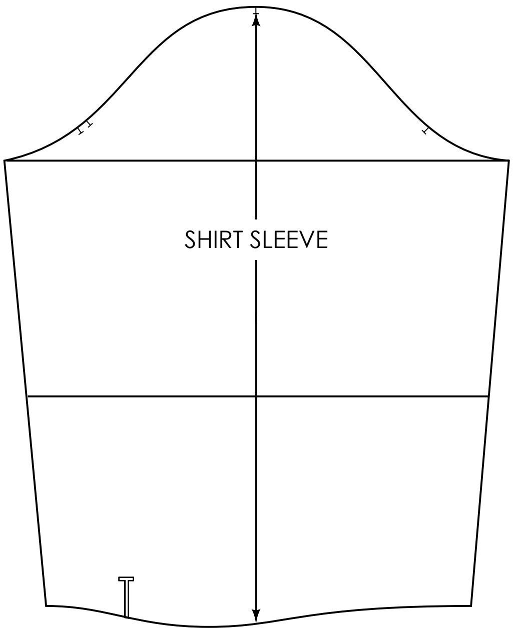
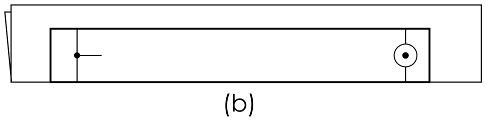
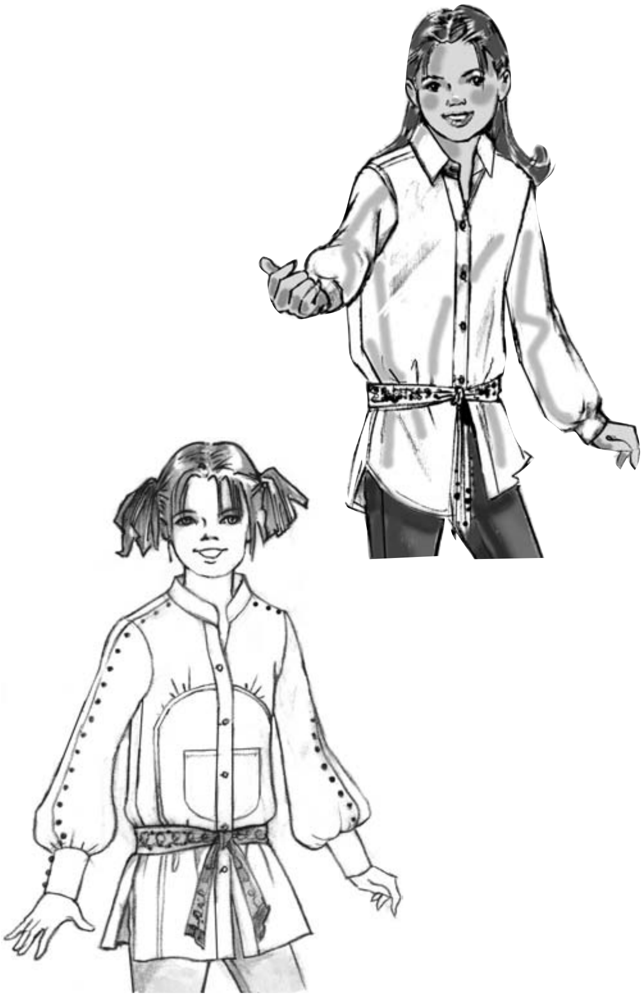


Figure 2
A completed shirt sleeve pattern is illustrated.

Figure 3 Cuff
Length: entry measurement, plus 1". Width: 2" plus seam allowance.

Figure 3





SELF-EVALUATION TEST

Design analysis: There are 9 differences between the basic shirt and the design shirt. Name the nine areas that will change the basic pattern into a design pattern.

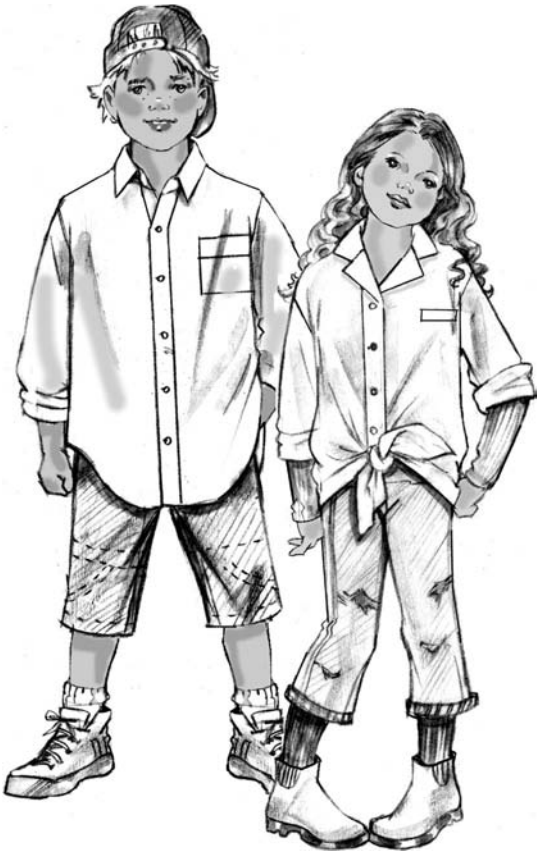
1. ____________________ **2.** ____________________
3. ____________________ **4.** ____________________
5. ____________________ **6.** ____________________
7. ____________________ **8.** ____________________
9. ____

The back view is not shown. How would you design the back?

Develop this design by tracing the basic shirt patterns. Plot the design lines and determine how to create excess over the arch-shaped design line. Cut in fabric and have a test fit.

OVERSIZED SHIRT AND SLEEVE

The oversized shirt is based on the basic shirt or it is drafted from the dartless pattern. The difference from the basic shirt is the width of the garment and the shortened sleeve cap.



Oversized Shirt Draft

Figures 1, 2

- Trace a copy of the shirt pattern (see previous three pages).
- Cut through the center of the front and back at shoulders.
- Draw a horizontal line on paper.
- Place the hem of the patterns on this line and spread 1 to 1 1/2 inches (or more).
- Trace the patterns. Lower the armholes 1/2 to 1 inch.
- Match the shoulders. Trim back shoulder, if necessary.
- Draw the pocket placement.
- Measure the front and full back armholes. Add together. Divide in half. Record for casual shirt sleeve draft ________________ (A–E of the oversized shirt sleeve draft on next page).

Figure 1

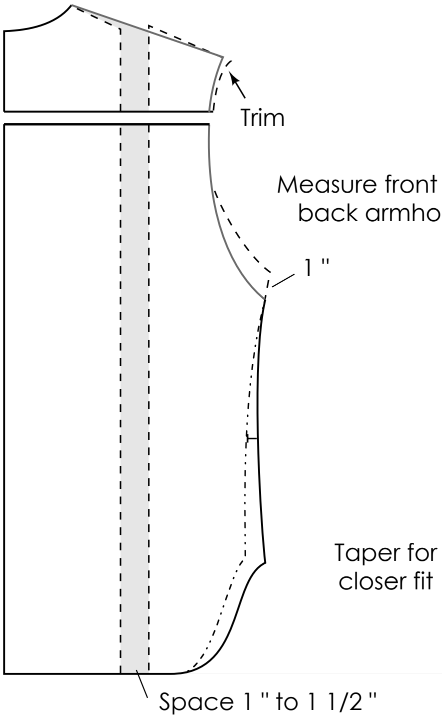

Trim
Measure front and back armholes
1 "
Taper for closer fit
Space 1 " to 1 1/2 "

Figure 2

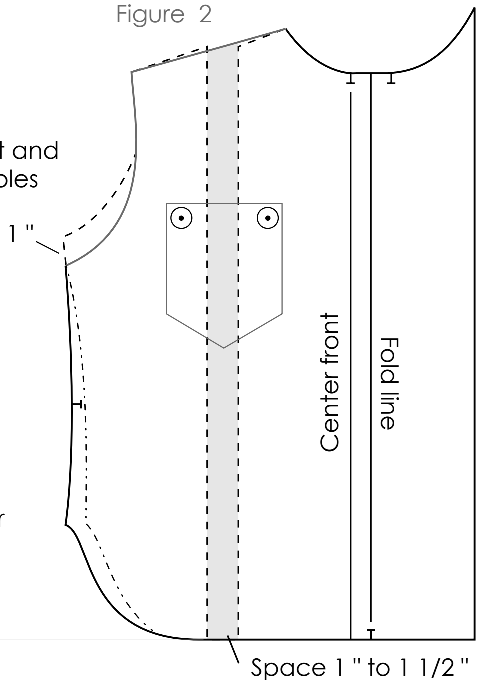

1 "
Center front
Fold line
Space 1 " to 1 1/2 "

Figure 3

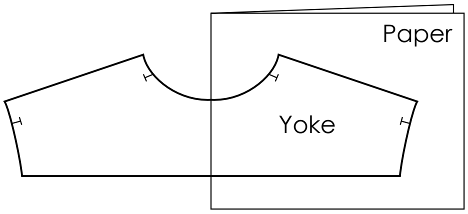


Figure 4

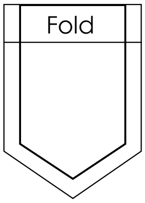


Figure 3

- Trace the yoke and cut on the fold.

Figure 4

- Trace the pocket; add a fold-back facing and seams.
- Complete the pattern for a test fit when the sleeve is drafted.

Oversized Shirt Sleeve Draft

The oversized shirt sleeve has a short cap height. The cap height is determined by the amount of overhang at the shoulderline of the shirt. For example, if the overhang of the shoulderline is 1 inch, subtract 1 inch from the original cap height, or use one-half of the cap height as illustrated. The sleeve length can either hang over the wrist and knuckles or end at the wristbone (or any length in between).

Figure 1

A–B = sleeve length, less cuff width.
Draw line and fold paper.
A–C = one-half of original cap height.
B–D = elbow level, plus 3/4 inch (toward C).
Square out from B, C, and D.
A–E = one-half of the armhole measurement.
(Add front and back armholes together; divide in half; A–E is that measurement.)
Draw a line from A to E.

- Divide A–E into fourths.
- Measure out 1/4 inch and in 1/8 inch, as illustrated.
- Draw curve of the cap with French curve.
- Square down from E to wrist level.
  Label F.
  The hemline may be treated in several different ways, with or without gathers and pleats.
- For gathers, subtract 1 or more inches from F.
- Mark approximately 1 1/2 inches from the underseam for slit placement.
- At this mark, draw a line 1/2 inch down and 2 inches up (slit).
- Cut the sleeve from paper.
- Unfold and draw a blended curve line for hem.

Notches: 1/2 inch down from mid-cap, mark 2 notches (back) and notch (front)

Walk sleeve to armhole and mark armhole notches.

Figure 1

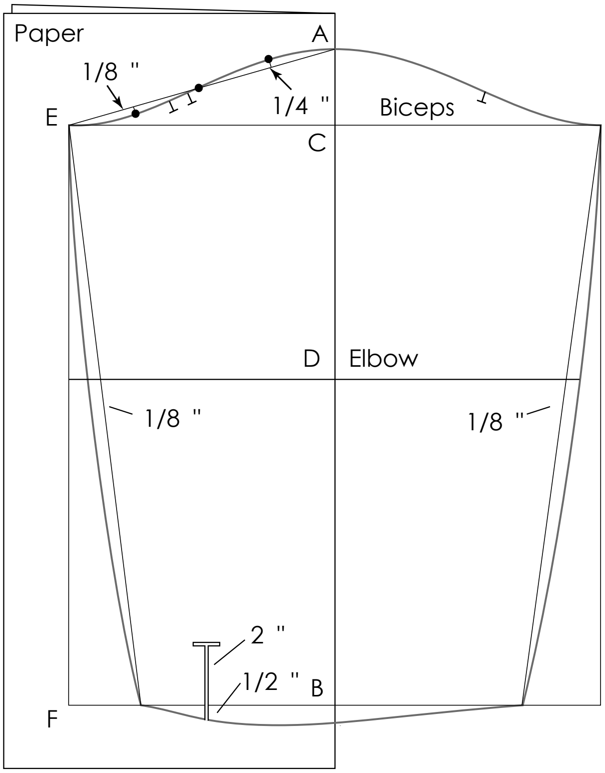
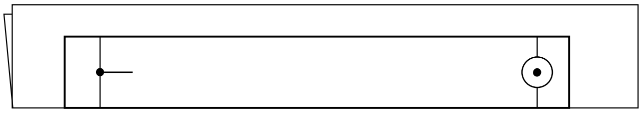


Figure 2 Cuff

- Use entry measurement, plus 1-inch extension. (Cut width 2 inches, plus seam allowance.) Finished width is 1 inch.

Figure 2



KNIT FOUNDATION AND SLEEVE

The knit draft is based on the dartless foundation pattern. It is a casual garment and is developed oversized. If oversizing is not desired, use the dartless pattern as the base for designs. A special sleeve is drafted for this type of garment. Pre-shrink knit fabrics.

The front and back patterns are drafted together and separated at the completion of the draft. Add a 3/8-inch seam allowance.

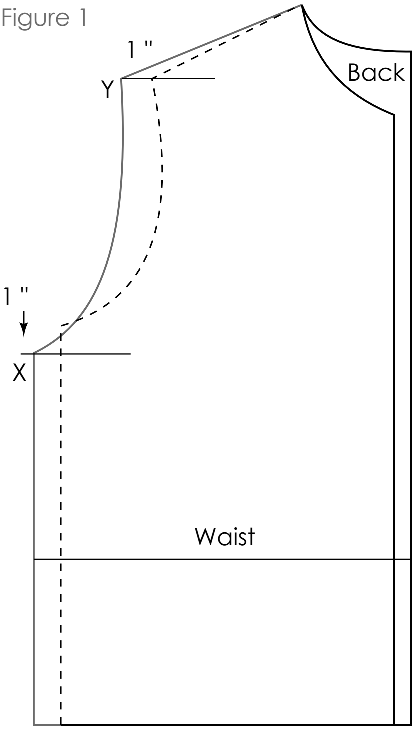
Knit Draft

Figure 1

- Trace the dartless front pattern.
- Place the back pattern on top of the front pattern, matching hip levels and shoulder-neck points. (If shoulder and neck do not meet, equalize the difference and mark.)
- Trace the back neckline and center line.
- Square out 1 inch below the armhole. Label X and draw a parallel line to hem.
- Extend shoulder 1/2 to 1 inch. Draw a line from shoulder-neck to Y.

  Draw adjusted armhole from Y to X and measure. Record ______________ (A–E measurement on the sleeve draft).

Figure 1



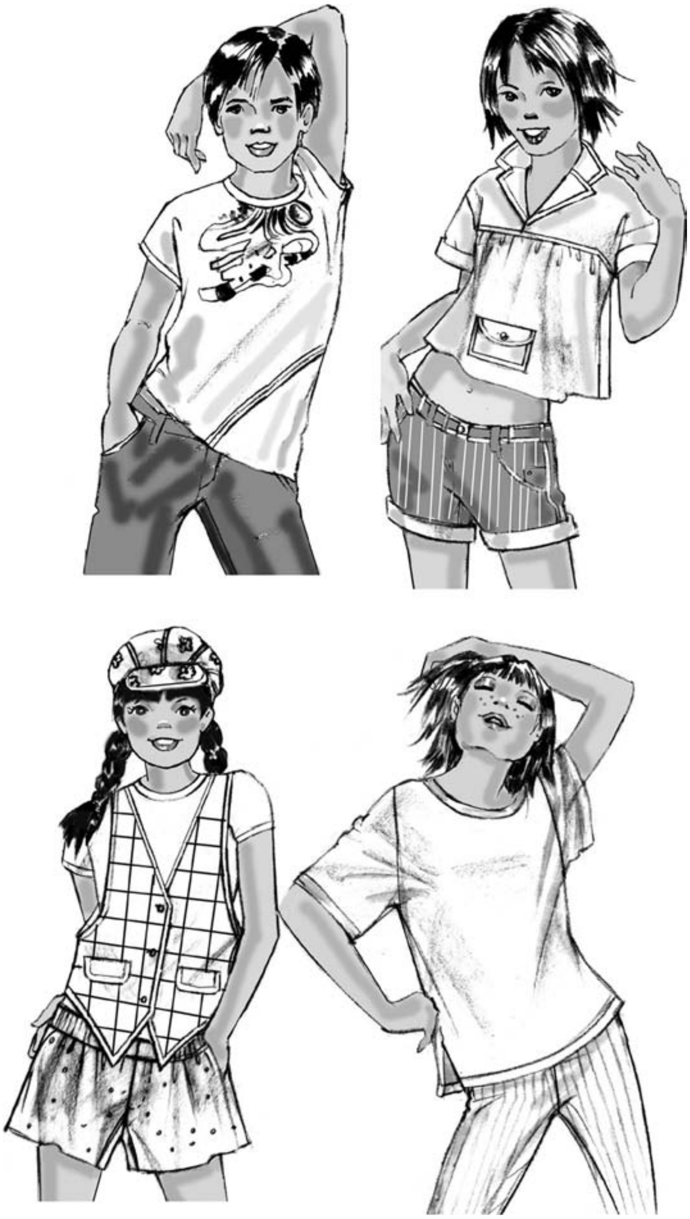


Figure 2

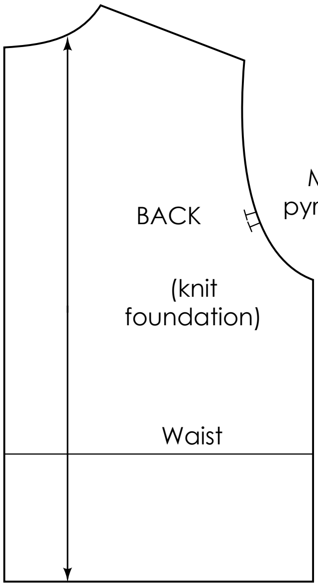
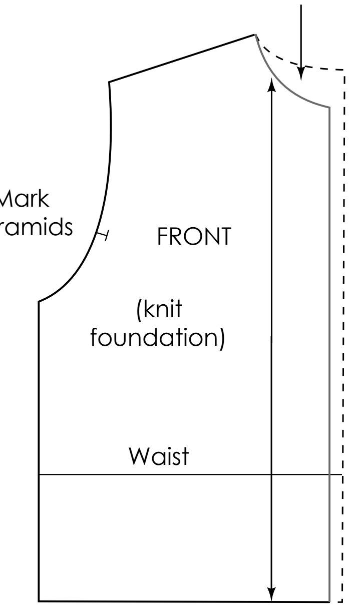

BACK
(knit foundation)
Waist
Mark pyramids

Figure 3


Cut away after back is traced
FRONT
(knit foundation)
Waist

Figures 2, 3

- Cut pattern from paper and trace for the back pattern. Add 3/8-inch seams if the pattern is overlocked.
- Trim to front neckline and center line for the front pattern.

Figures 4a, b Ribbing

Ribbing placed around the neckline, hemline, and wrist is a common feature of the knit foundation. Trim away an amount equal to the width of the rib, less 3/8-inch seam allowance. Ribbing should be stretched as it is stitched to the garment.

Figure 4a

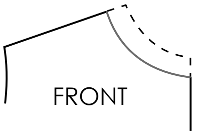
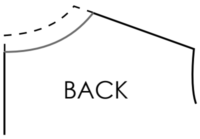


Figure 4b



Knit Sleeve Draft

Short and Long Sleeve

Measurements Needed

- See measurements chart, page 735.
- Sleeve (overarm) length ________________.
- Armhole measurement (A–E) ________________.
- Hand entry measurement ________________.

Figure 1

A–B = sleeve length. Draw a line in the middle of the paper and fold.

A–C = 3 inches (biceps level).

Square out from C.

B–D = one-half of B–C (elbow level).

Square out from D.

A–E = one-half of the total armhole measurement.

Draw a line touching the biceps line.

Divide the line into fourths.

Using the measurements given, draw the sleeve cap.

B–G = one-half of hand entry measurement plus 1/2".

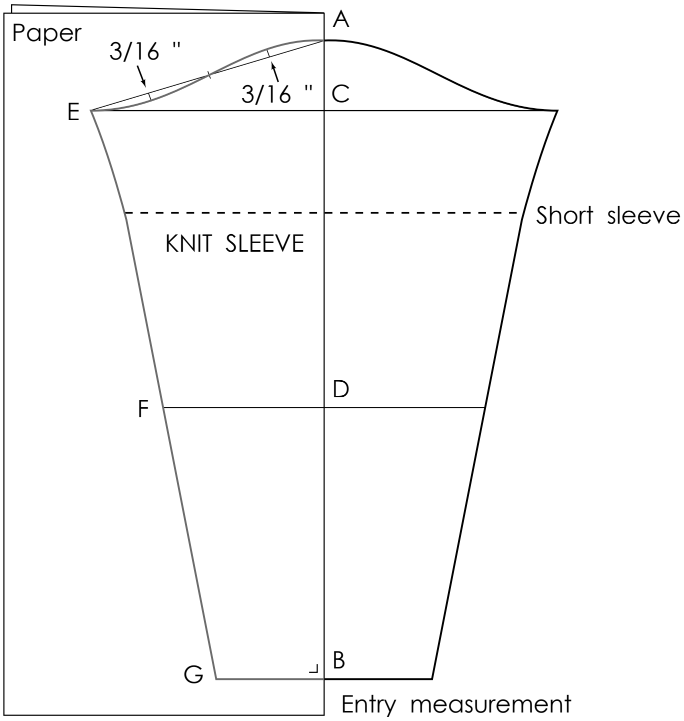
D–F = B–G plus 1/2 inch, or more.

Draw a line from G to F and a curved line from F to E.

Add a 3/8-inch seam allowance.

Complete the pattern for a test fit.

Figure 1


Paper
A
3/16 "
3/16 "
C
E
Short sleeve
KNIT SLEEVE
D
F
G
B
Entry measurement

Modified Knit Top

This design illustrates how the dartless knit pattern can be adjusted to minimize the looseness (gapping) of the front armhole.

Design Analysis

The knit top design can be used as a base for other designs.

Modify the Side Seam

Figure 1

- Trace the dartless knit pattern.
- Plot the styleline, using the illustration as a guide.
- The armhole is modified by raising the armhole 3/8 inch and trimming 3/8 inch from the front hem at the side seam. The armhole and hemline are blended for a smooth transition line.
- Remove 1/8 inch or more *along* the side seam for a closer fit, if desired.
- Add 3/8-inch seams.
- Cut from paper and complete the pattern for a test fit.

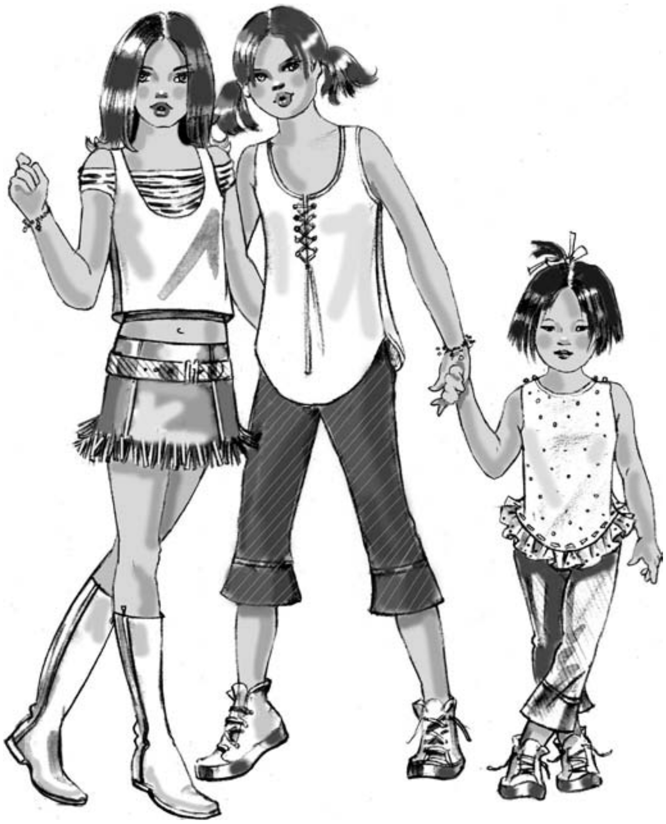
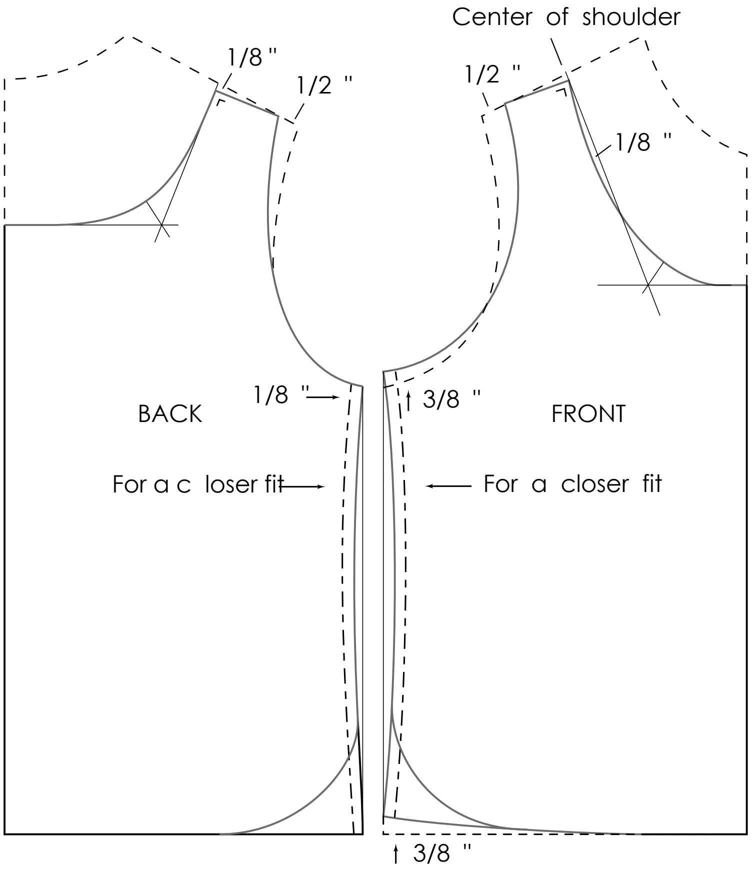


Figure 1


Center of shoulder
1/8 "
1/2 "
1/2 "
1/8 "
BACK
1/8 "
3/8 "
FRONT
For a c loser fit
For a closer fit
3/8 "

RAGLAN FOUNDATION

The raglan styleline combines part of the bodice with the sleeve. The raglan styleline can be drafted on the basic pattern, shift, dartless pattern, and the coat foundation. The raglan is generally used for casual garments with deep armholes. The basic dartless pattern is illustrated.

Raglan Draft

Figure 1

Dartless Pattern Modification

- Trace the dartless basic patterns and sleeve.
- Mark notches 1/2 inch up from the front and back armholes, or halfway of the armhole to balance the styleline. Label X.
- Lower the armholes 3/4 to 1 inch. Label Y.
- Draw new armholes from Y to X.

Figure 1

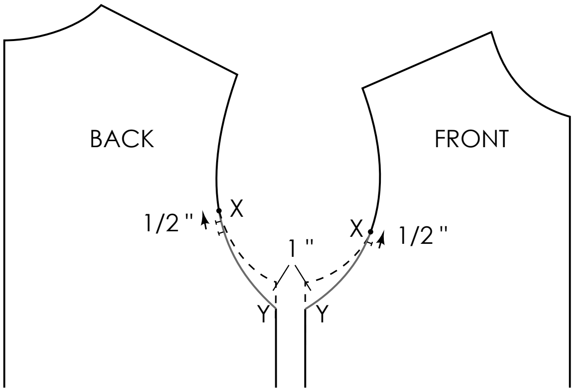

BACK
FRONT
1/2"
X
1"
X
1/2"
Y
Y

Figure 2

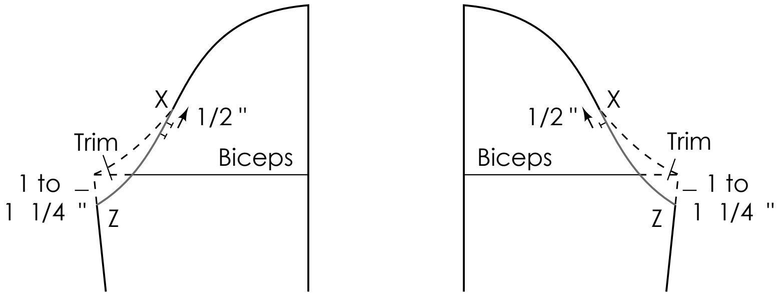

X
1/2"
Trim
Biceps
1 to
1 1/4"
Z
1/2"
X
Biceps
Trim
1 to
1 1/4"
Z

Figure 2

Sleeve Modification

- Repeat instruction for the sleeve notches (X). Lower armhole. Label Z, as shown. Separate the sleeve on the center grainline.

Figure 3

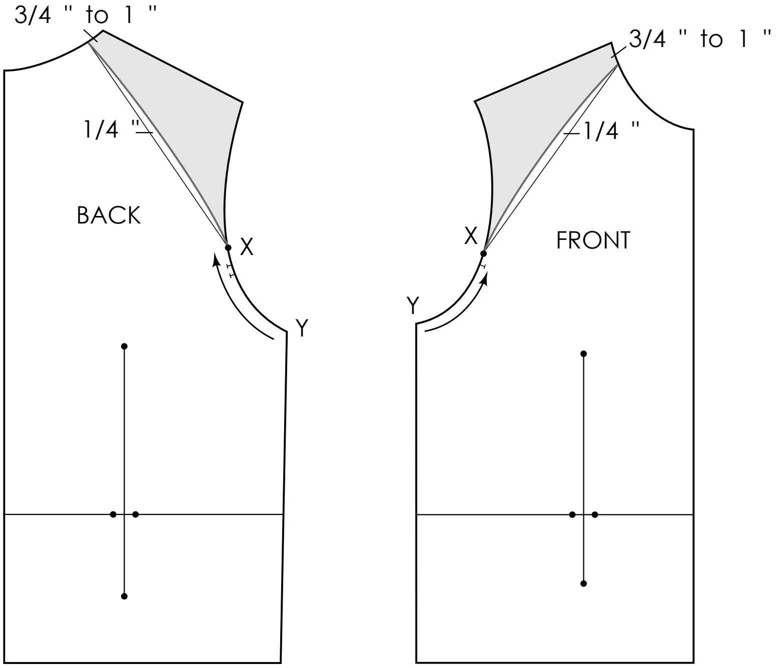

3/4" to 1"
1/4"
BACK
X
Y
3/4" to 1"
1/4"
X
FRONT
Y

Figure 3

Raglan Yoke Styleline

- Draw a straight line from X to the neck and reshape by drawing a slightly curved line for the yoke raglan (shaded areas).

Figures 4a, b

Separating Raglan Yoke

- Cut the raglan yoke from the pattern and trace yoke on paper.

Figure 4a

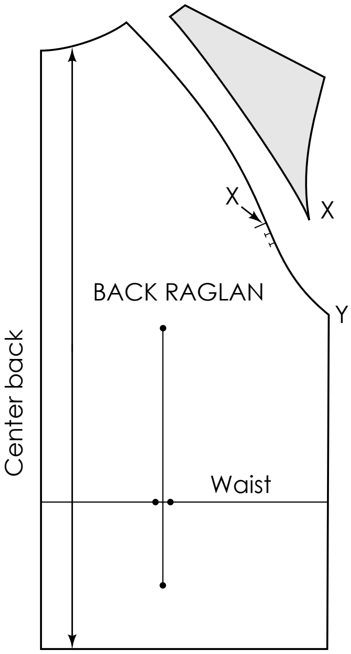

X
X
BACK RAGLAN
Y
Center back
Waist

Figure 4b

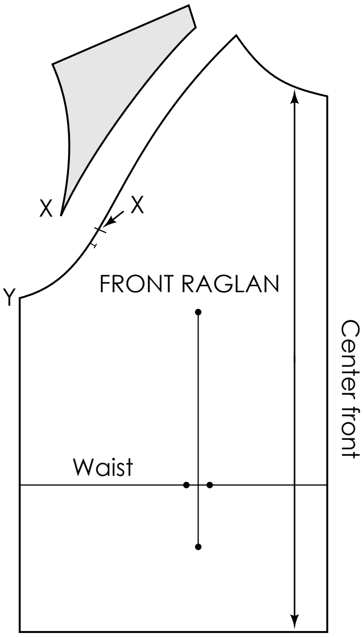

X
X
Y
FRONT RAGLAN
Center front
Waist

Figure 5

Attaching Raglan Yoke to Sleeve

- Place front sleeve on the traced raglan yoke, matching X points, and the sleeve cap to shoulder tip of the raglan yoke.
- The center of the sleeve cap may pass shoulder tip and overlap the armhole curve (not a problem).
- Trace under the curve of the sleeve from X to the sleeve corner.
- Mark 1" to 1 1/4" down from under seam.
- Place a push pin through the sleeve tip.

Figure 6

Adding Lift

- Pivot sleeve downward, touching the bicep guideline.
- Trace the underseam from the elbow to corner of the sleeve, as shown.
- Mark 1/8" at the shoulder tip and 1/8 to 1/4" at biceps, and draw a parallel line to the hem, or taper (broken line).
- Draw a blending line over the shoulder to mid-shoulder.
- Repeat for the back sleeve.

Figure 5

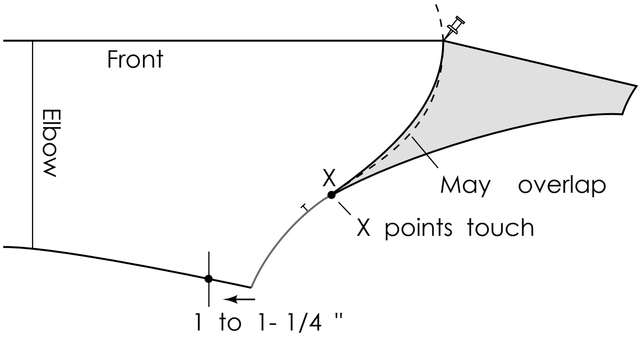
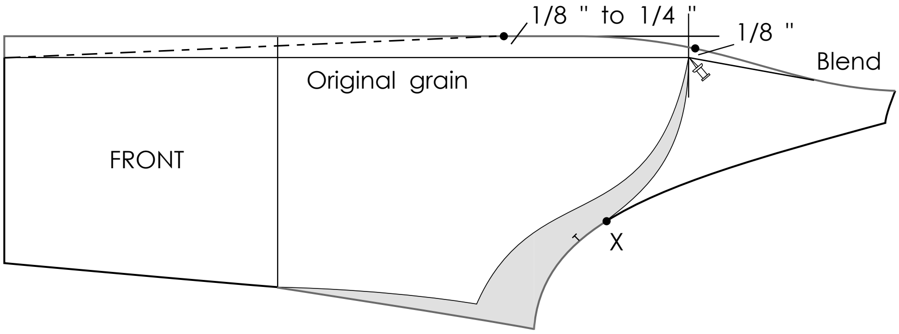

Front
Elbow
X
May overlap
X points touch
1 to 1- 1/4 "

Figure 6


1/8 " to 1/4 "
1/8 "
Blend
Original grain
FRONT
X

JACKET AND COAT FOUNDATIONS

The jacket and coat foundations are based on the dartless foundation and are appropriate for sizes 3 to 6X and 7 to 14, boys' and girls'. The jacket, coat, and sleeve are made larger to fit comfortably over other garments. The foundations can be modified for other designs like the raglan, drop shoulder, yoke, princess, and many other variations. Waist darts are included to help in shaping the garments for a closer fit and styleline placements.

Cut and sew the garment in a firm fabric. Check the fit in the following areas: sleeve cap for sufficient ease and sleeve alignment with the side seams of the garment. Check armhole depth; too high or too low, and the fit too loose or too tight. Suggested fit solutions are given on the following page.

The jacket and coat sleeve draft is based on the basic sleeve. The elbow dart can be eased into the underseam or drawn as a straight underseam (provides a wider entry).

Back Jacket and Coat Draft

Figures 1 and 2

Trace the front and back dartless patterns (shown as broken lines). Use the illustration and measurements for drafting the jacket and coat foundations. Jacket measurements are shown in black, and coat measurements are shown in blue. The sleeve draft follows.

Figure 1

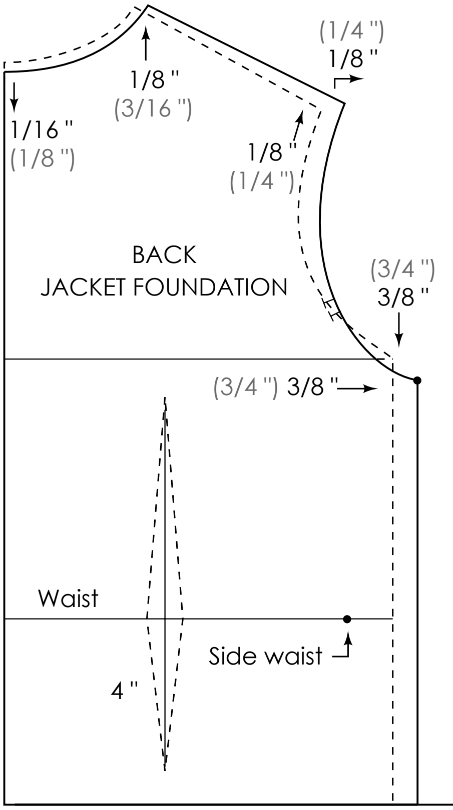
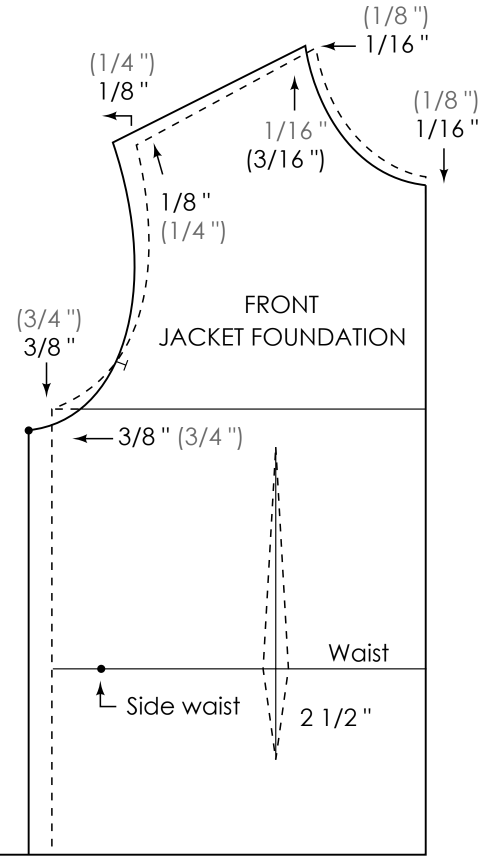

(1/4 ")
1/8 "
1/8 "
(3/16 ")
1/16 "
(1/8 ")
1/8 "
(1/4 ")
BACK
JACKET FOUNDATION
(3/4 ")
3/8 "
(3/4 ") 3/8 "
Waist
Side waist
4 "

Figure 2


(1/8 ")
1/16 "
(1/4 ")
1/8 "
1/16 "
(3/16 ")
(1/8 ")
1/16 "
1/8 "
(1/4 ")
(3/4 ")
3/8 "
FRONT
JACKET FOUNDATION
3/8 " (3/4 ")
Waist
Side waist
2 1/2 "

Measurements Needed

Front armhole. ___________.

Back armhole. ___________.

Total ___________. Label X.

Measurements may be needed for a personal fit when drafting the sleeve.

Sleeve Draft for Jacket and Coat

Record sleeve measurements for jacket or coat of the model size.

Draft the jacket or coat sleeve. After completing the draft, then draft the two-piece sleeve.

For personal fit, follow this formula:

- *Sleeve length,* as appropriate ______________.
- Measure jacket or coat armholes, add together, and record ______________ (X).
- *Cap height:*

  Divide X by 3 ______________ (Y).
- *Biceps:*

  Divide X by 2, add 3/8 inch ______________ (Z)

  (Z is the A–E measurement in the draft instructions).

Fitting Problems and Solutions

Figures 1a, b, c, d, e, f, g

- Increase jacket, front and back (a).
- Decrease jacket, front and back (b).
- Decrease cap fullness (c).
- Increase cap fullness (d).
- Lower (e) or raise (f) armhole.
- Adjust sleeve by equal amounts (g).

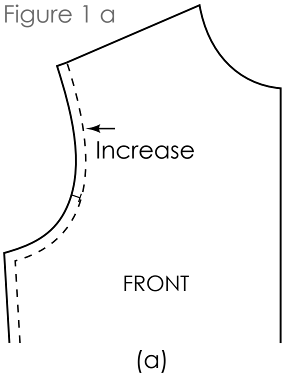


Figure 1 a
Increase
FRONT
(a)

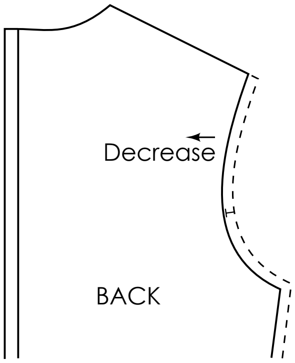


Figure 1 b
Decrease
BACK

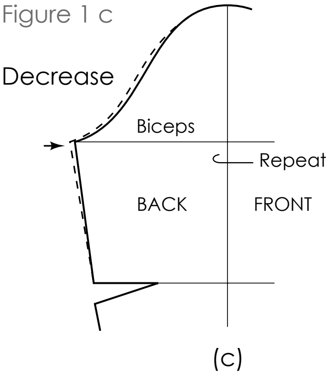


Figure 1 c
Decrease
Biceps
Repeat
BACK
FRONT
(c)

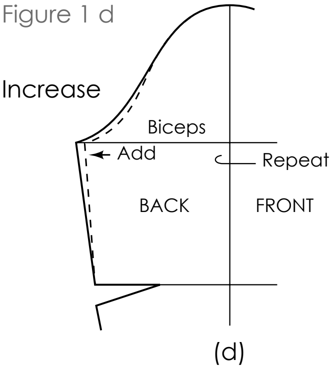


Figure 1 d
Increase
Biceps
Add
Repeat
BACK
FRONT
(d)

Sleeve Measurement Chart for Jacket and Coat

Jacket

Sizes	**3**	**4**	**5**	**6**	**6X**
Sleeve length	13 1/4	14 1/8	15	15 7/8	16 1/2
Cap height	4 3/4	4 7/8	5	5 1/8	5 1/4
Bicep	10 3/4	11 1/8	11 1/2	11 7/8	12 1/4

Coat

Sizes	**3**	**4**	**5**	**6**	**6X**
Sleeve length	13 1/2	14 1/4	15	15 3/4	15 1/4
Cap height	5 1/2	5 5/8	5 3/4	5 7/8	6
Bicep	12	12 3/8	12 3/4	13 1/8	13 1/2

Jacket

Sizes	**7**	**8**	**10**	**12**	**14**
Sleeve length	16	16 7/8	17 3/4	18 5/8	19 1/2
Cap height	5	5 1/8	5 1/4	5 3/8	5 1/2
Bicep	11 1/4	11 5/8	12	12 3/8	12 3/4

Coat

Sizes	**7**	**8**	**10**	**12**	**14**
Sleeve length	16	16 7/8	17 3/4	18 5/8	19 1/2
Cap height	5 1/2	5 5/8	5 3/4	5 7/8	6
Bicep	12	12 3/8	12 3/4	13 1/8	13 1/2

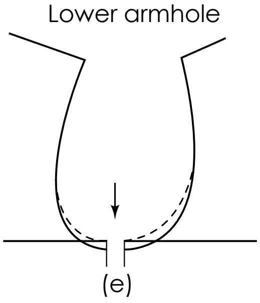


Figure 1e
Lower armhole
(e)

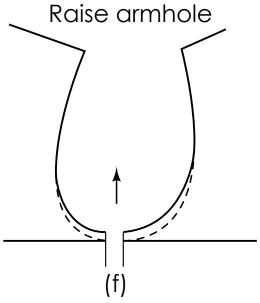


Figure 1f
Raise armhole
(f)

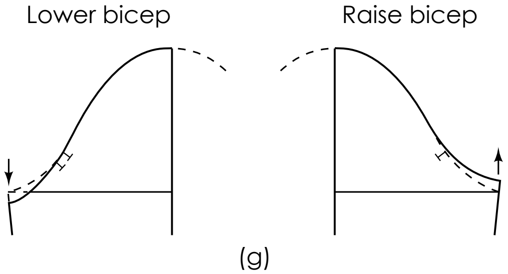
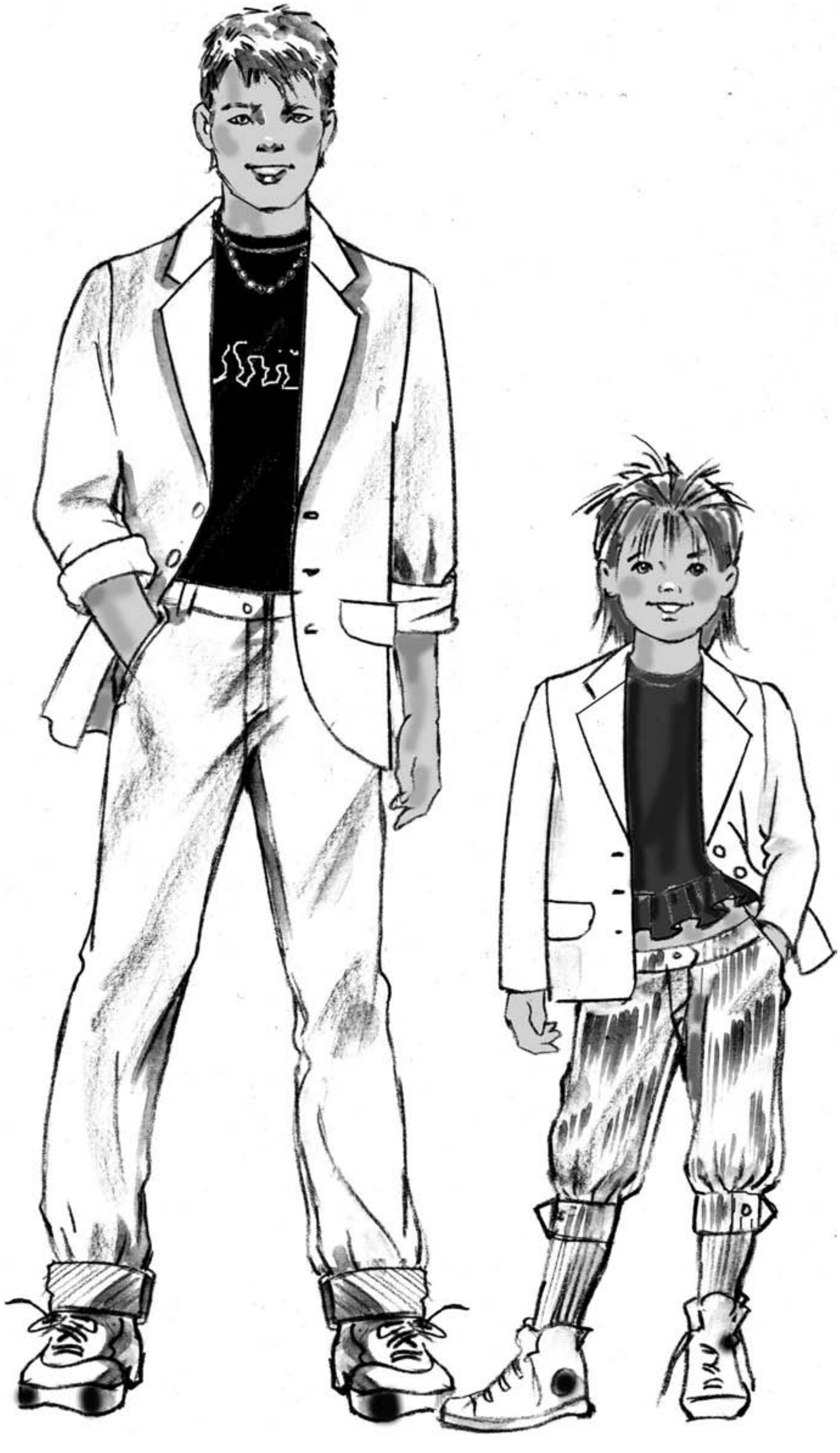


Figure 1g
Lower bicep
Raise bicep
(g)

Jacket with Notched Collar

The jacket design is appropriate for sizes 3 to 6X and 7 to 14, boys' and girls'. The basic notched jacket is based on the jacket foundation pattern. Jacket sleeve completes the pattern set.



Jacket with Notched Collar

Figure 1 Back

- Trace the back pattern. Use illustration to plot the pattern and facing.

Figure 2 Front

- Trace the jacket pattern.
- Add 3/4 inch for extension. Draw the line from hem to break-point.

Lapel

- Draw a 2-inch line out from center front neck.
- Mark a notch 1/2 inch past center front neck.
- Draw an outward curved lapel line to break-point notch and draw a curved line at the hem.
- Draw the facing (1 1/4 inch from neck, 2 1/2 at hem).
- Add a 1 inch hem allowance, extending 3/4 inch past facing.

Collar

- Measure in 1/4 inch from shoulder-neck. Label X.
- Draw a straight line from curve of mid-neck to X and continue to equal back neck measurement of the jacket, plus 1/8 inch. Label Y.
- Mark 1/2 inch down from Y. Label Z.
- Draw a curved line from X to Z.
- Square up 2 1/2 inches from the X–Z line. From this point, square a short line. Draw the collar parallel to neckline, ending 1/2 inch or more from the lapel.

Figure 1

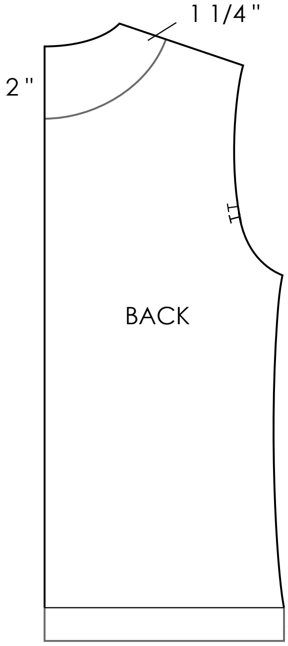


Figure 2

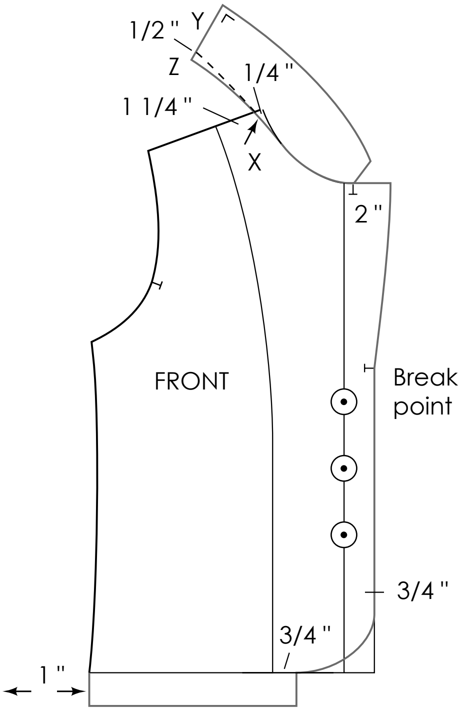


Figure 5 Upper Collar

- Transfer the collar to paper and cut on the fold (upper collar).

Figure 5

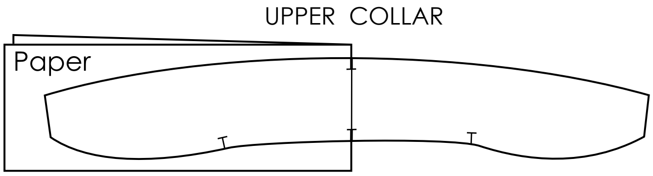
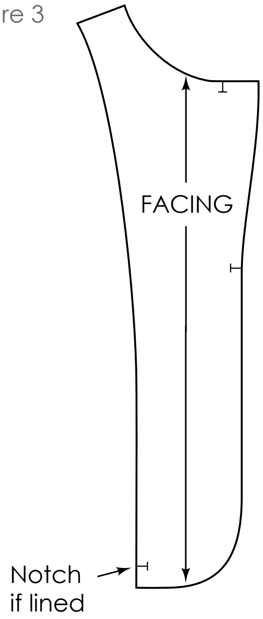


Figure 3



Figures 3, 4

- Trace the front facing.
- Place folded paper under the back pattern and transfer the facing.

Figure 4

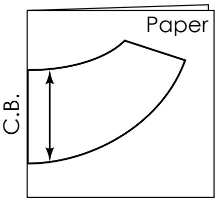
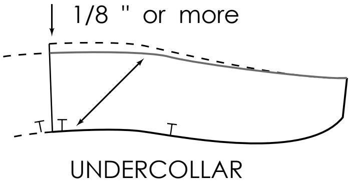


Figure 6 Under Collor

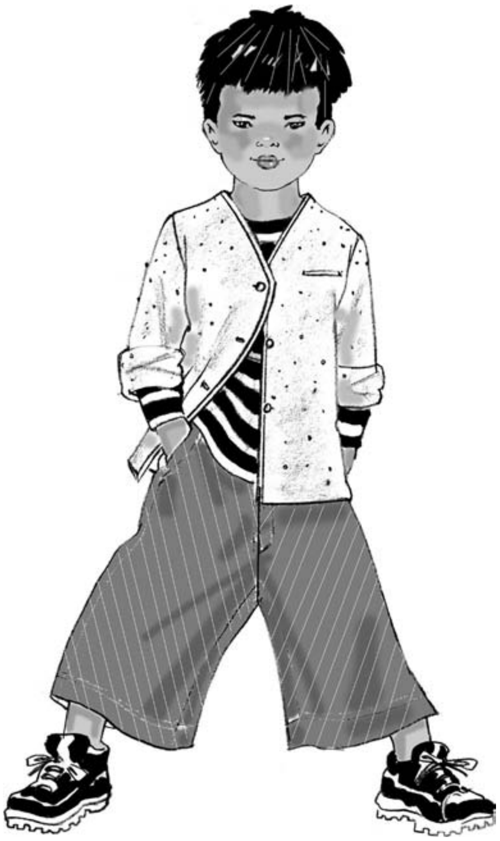
- Trace uppercollar and trim the collar's edge.
- Mark a notch 1/4 inch in from the center back (undercollar).

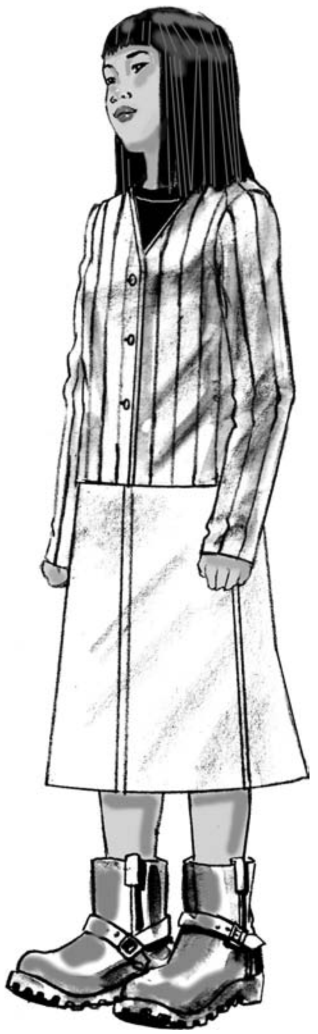
Figure 6



Cardigan Jacket

The cardigan design is appropriate for sizes 3 to 6X and 7 to 14, boys' and girls'. The collarless cardigan jacket is based on the basic jacket foundation. The basic jacket sleeve is used with this design.



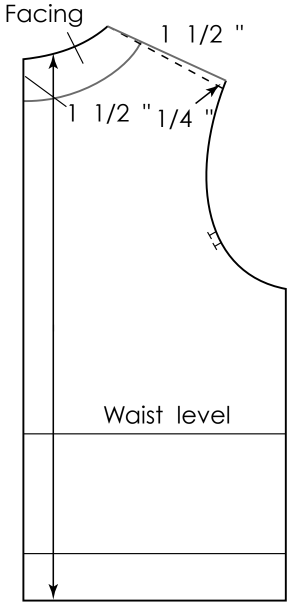


Cardigan Draft

Figures 1, 2

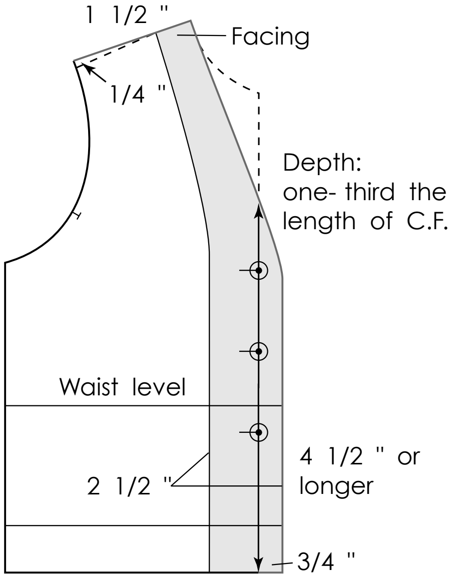
- Trace the front and back jacket pattern.
- Add to the shoulder tip if shoulder pads are desired.
- Plot the styleline and facing, using measurements as a guide. Mark buttonhole placements.

Figure 1



Facing
1 1/2 "
1 1/2 "
1/4 "
Waist level

Figure 2



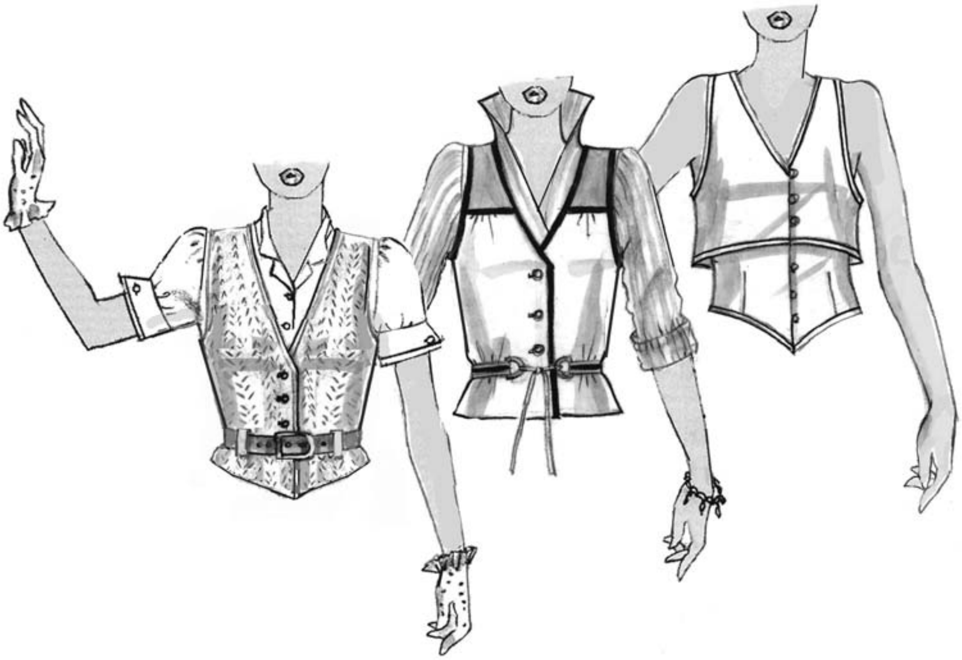
1 1/2 "
Facing
1/4 "
Depth:
one- third the
length of C.F.
Waist level
2 1/2 "
4 1/2 " or
longer
3/4 "

Vest

The design is appropriate for sizes 3 to 6X and 7 to 14, boys' and girls'. The vest can be based on the basic bodice, dartless pattern, shift, or jacket pattern. The dartless pattern is used for the illustration.

The vest draft is modified by changing the width of the shoulder in or out from the regular shoulderline. The armhole depth can be varied, as can the shape of the vest and its length.

- The vest can be lined or faced, or the edges can be overlocked and stitched.



A Basic Vest

Figures 1, 2

- Follow the illustrations as a guide to plot the design.
- Cut the pattern from paper.
- Complete the pattern for a test fit.

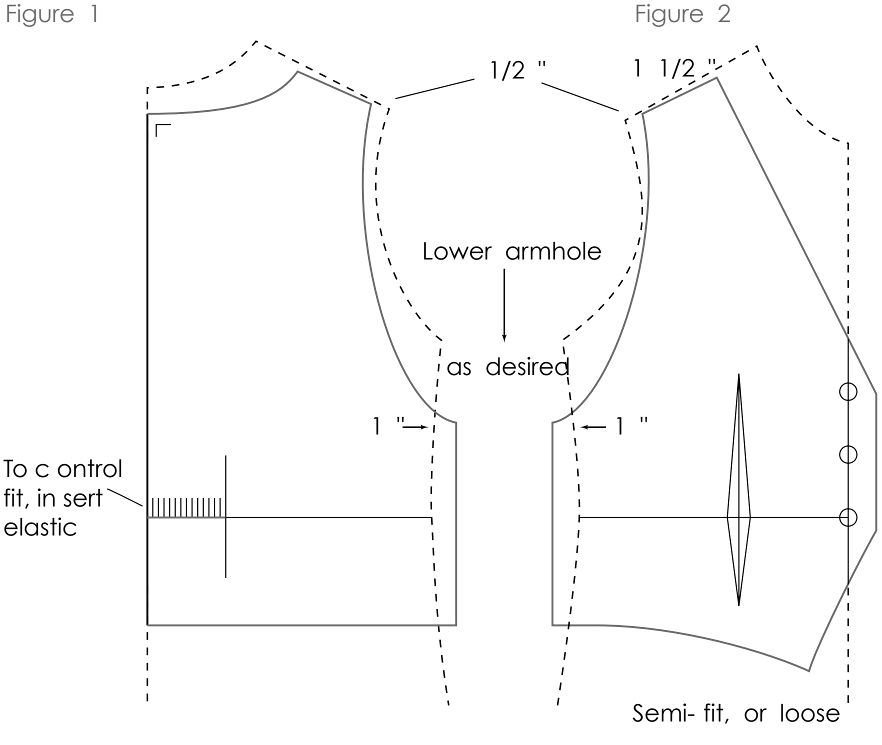


Figure 1
Figure 2
1/2 "
1 1/2 "
Lower armhole
as desired
1 "
1 "
To c ontrol fit, in sert elastic
Semi- fit, or loose

NAVY PEA COAT

The design is appropriate for sizes 3 to 6X and 7 to 14, boys' and girls'. The pea coat is based on the coat foundation.

Design Analysis

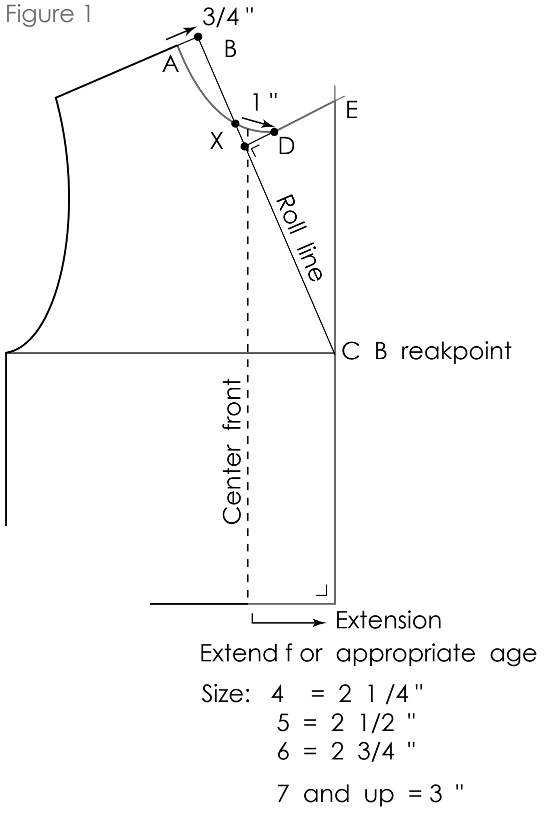
The pea coat is the traditional coat design for the navy. The double-breasted coat is buttoned left-over-right for boys and right-over-left for girls.

Pea Coat Draft

Figure 1 Lapel

- Trace the front and back coat pattern, extending to length desired. Label A at shoulder-neck.
- Choose an extension from the chart and draw a line parallel with the center front.
- Square a line from the center front at level with the armhole. Mark breakpoint. Label C.
- Extend a line 3/4 inch past A. Label B.
- Draw a roll line from B to C.
- Label X at the roll line and neck.
- Continue the neckline curve 1 inch past X. Label D.
- Place a square ruler on the roll line and point D. Draw a line to the extension. Label E.

Figure 1


3/4"
A
B
1"
E
X
D
Roll line
C Breakpoint
Center front
Extension
Extend for appropriate age
Size: 4 = 2 1/4"
5 = 2 1/2"
6 = 2 3/4"
7 and up = 3"

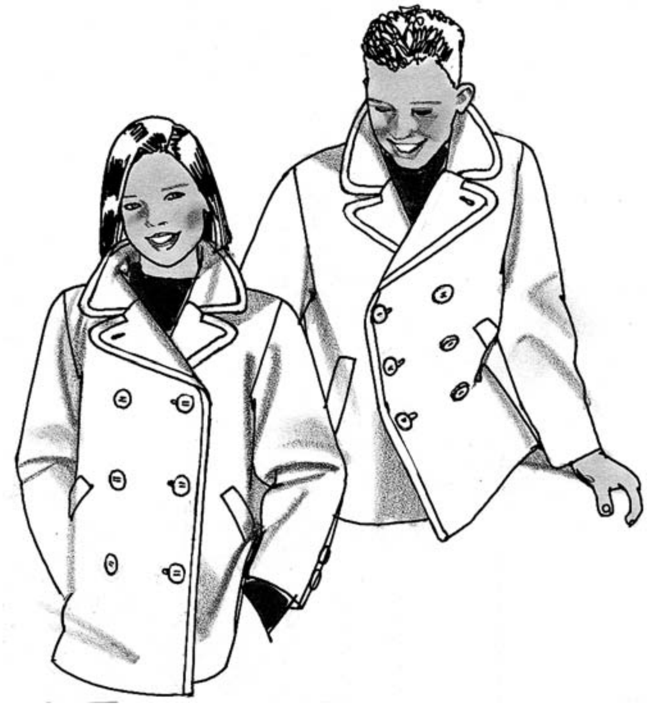


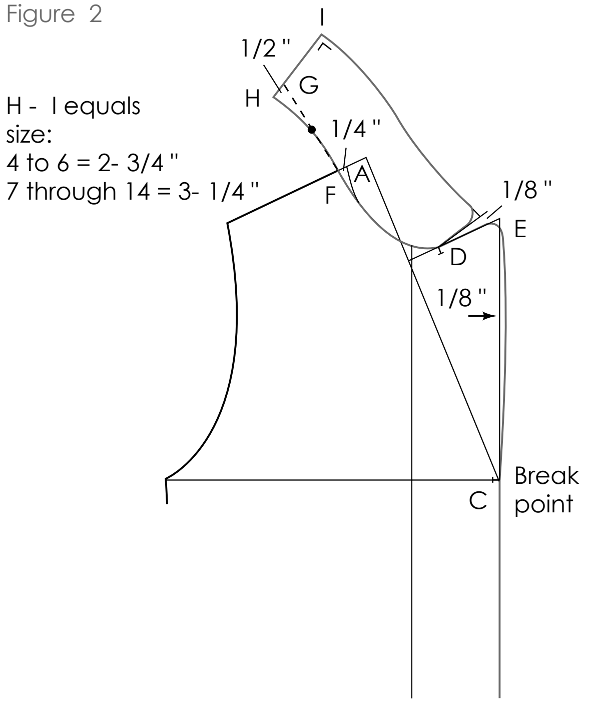
Figure 2 Collar

A–F = 1/4 inch.

F–G = back neck measurement (plus 1/8 inch). Place the edge of ruler at outer curve of neckline and touching F. Draw the neck measurement line from F to G and continue to the curve of the neckline. Mark mid-point between F and G.

Mark 1/2 inch down from H, and square the line from H to I, using H–I measurement taken from the guide chart. Draw the collar parallel to neckline.

Figure 2


I
1/2"
H
G
H - I equals
size:
4 to 6 = 2- 3/4"
7 through 14 = 3- 1/4"
1/4"
F
A
1/8"
E
D
1/8"
C
Break point

Figures 3a, b

- Draw back facing (Figure 3a).
- Place folded paper under the draft and trace the facing (Figure 3b).

Figure 3 a

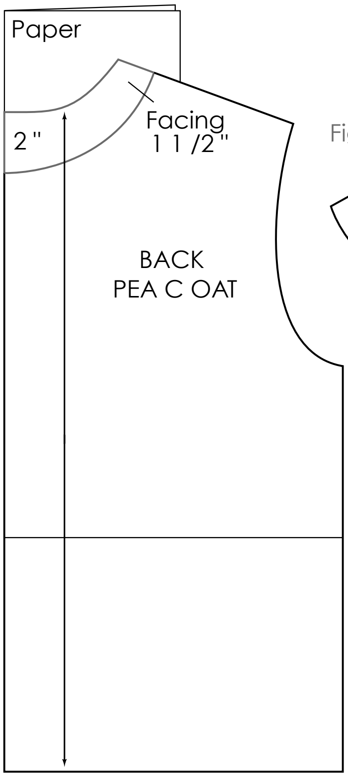

Paper
2"
Facing
1 1/2"
BACK
PEA C OAT

Figure 3 b

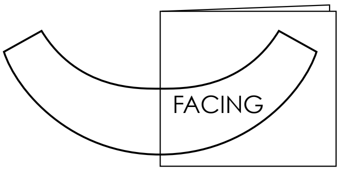


Figure 5 Upper Collar

- Cut the collar from paper.

Figure 5

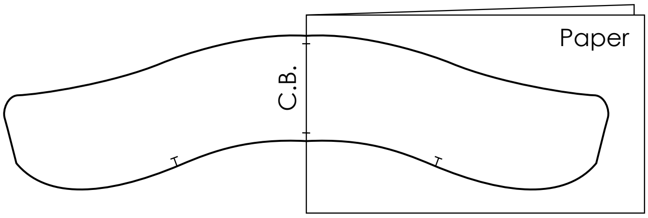


Figure 6 Under Collar

- Retrace the uppercollar and modify for the undercollar. Add 1/2 inch for a seam at the center back or cut on fold.

Figure 6

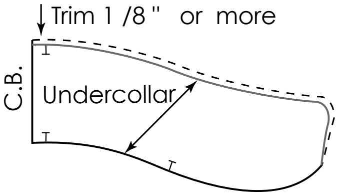

Trim 1/8" or more
C.B.
Undercollar

Figure 4 Pocket and Button Placements

- Plot the pocket placement, welt, and pocket lining.

Transfer Collar

- Place folded paper under the front draft to transfer the collar (D to F, to H, to I and remainder collar to D). Label uppercollar. Mark a notch at point F for shoulder guide.

Figure 4

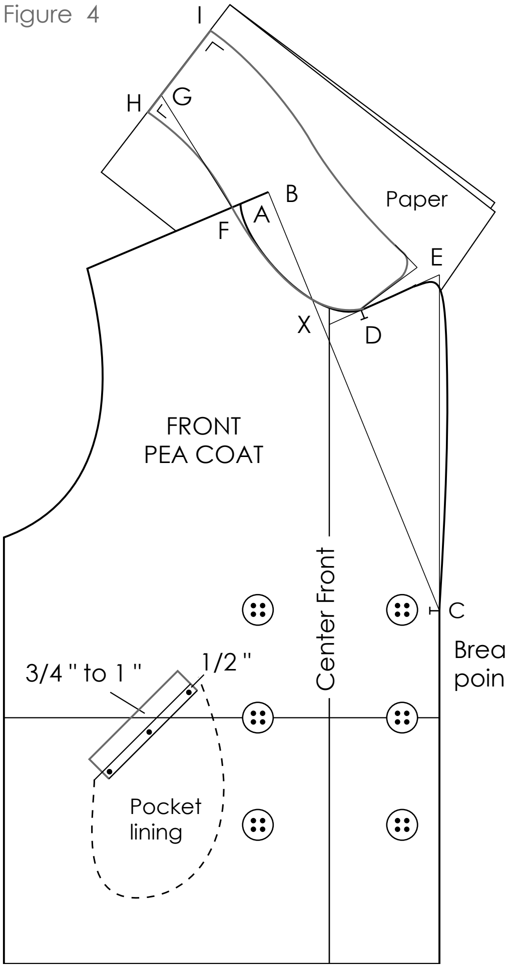

I
H
G
B
Paper
A
F
E
X
D
FRONT
PEA COAT
Center Front
C
Break point
3/4" to 1"
1/2"
Pocket lining

Figure 7 Partial Collar Roll

- Mark three slash lines, cut, and spread 1/8 inch. Retrace.

Figure 7

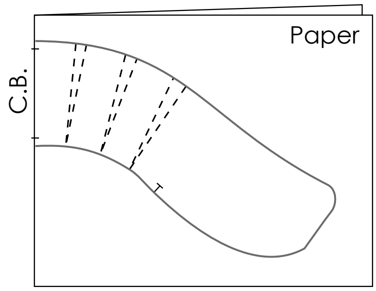
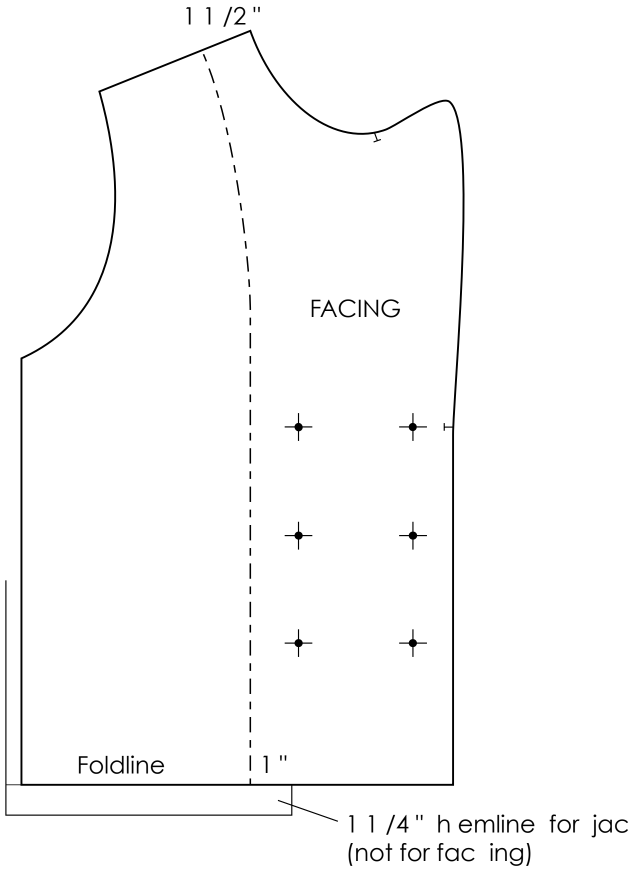


Figure 8 Facing and Jacket Hem

- Draw the facing (uneven broken lines).

  The hem allowance for the coat starts 1 inch from the facing.

Figure 8


1 1/2"
FACING
Foldline
1"
1 1/4" hemline for jac
(not for facing)

Pocket Welt, and Pocket Lining and Backing

Figures 10a, b, c

- Place paper under the front jacket and trace the pocket lining (should be 1 inch wider than the pocket slit) (a). See Figure 4 on previous page.
- Trace a copy for the pocket backing extending 3/4 inch (b).
- Follow instructions for the welt (c).

Figure 9 Facing Pattern

- Trace the facing and modify the pattern as illustrated. The facing is notched 1/2 inch up from hem level, indicating placement for the fold of the lining.

Figure 9

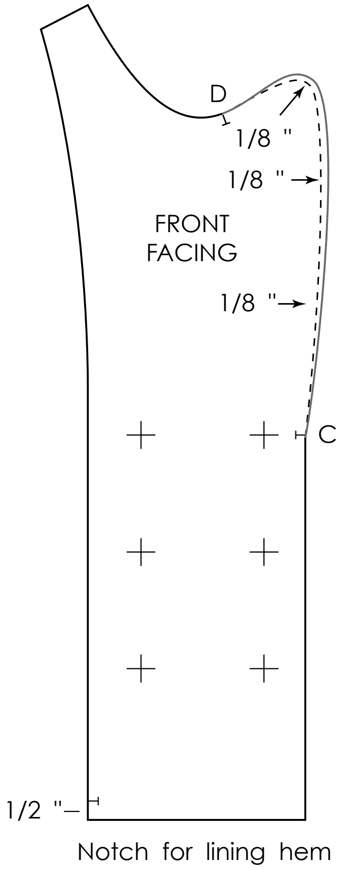
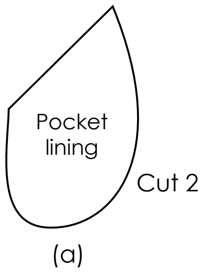

D
1/8"
1/8"
FRONT FACING
1/8"
C
1/2"
Notch for lining hem

Figure 10a


Pocket lining
Cut 2
(a)

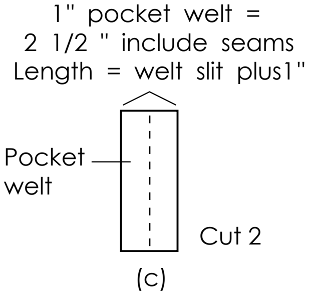
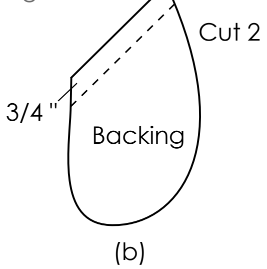

1" pocket welt =
2 1/2" include seams
Length = welt slit plus1"
Pocket welt
Cut 2
(c)

Figure 10c

Figure 10b


Cut 2
3/4"
Backing
(b)

Figures 11, 12 Front and Back Lining

- Follow the illustration as a guide in drawing lining patterns.

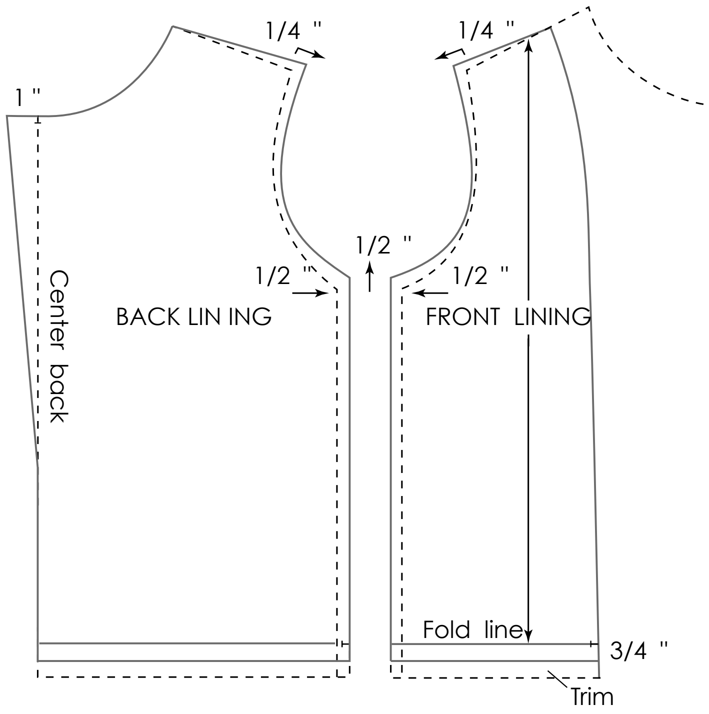


Figure 1 1
Figure 12
1/4 "
1/4 "
1 "
1/2 "
1/2 "
1/2 "
Center back
BACK LIN ING
FRONT LINING
Fold line
3/4 "
Trim

Figure 13 Sleeve

- Trace the coat sleeve. A guide for the seam allowance is illustrated.

Figure 14 Sleeve Lining

- Trace the sleeve (broken line) and follow the blue line, as illustrated for the lining pattern.
- Complete all patterns, add seams, and test fit.

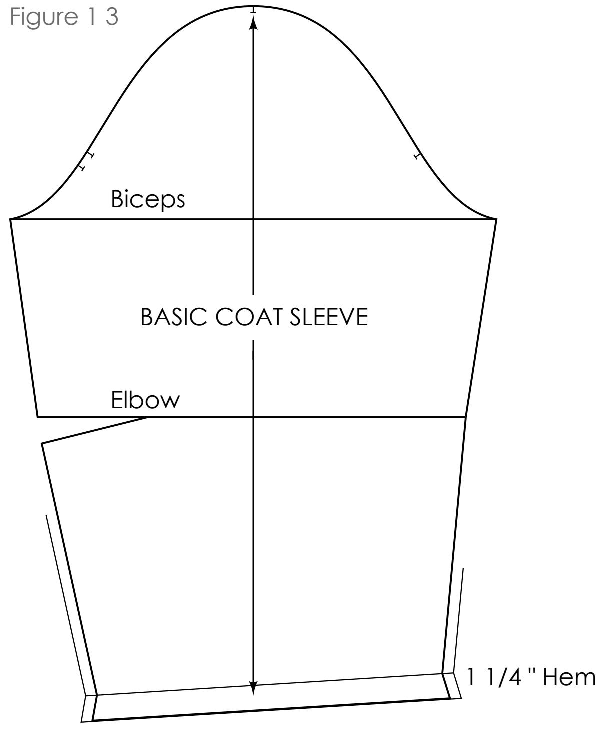


Figure 1 3
Biceps
BASIC COAT SLEEVE
Elbow
1 1/4 " Hem

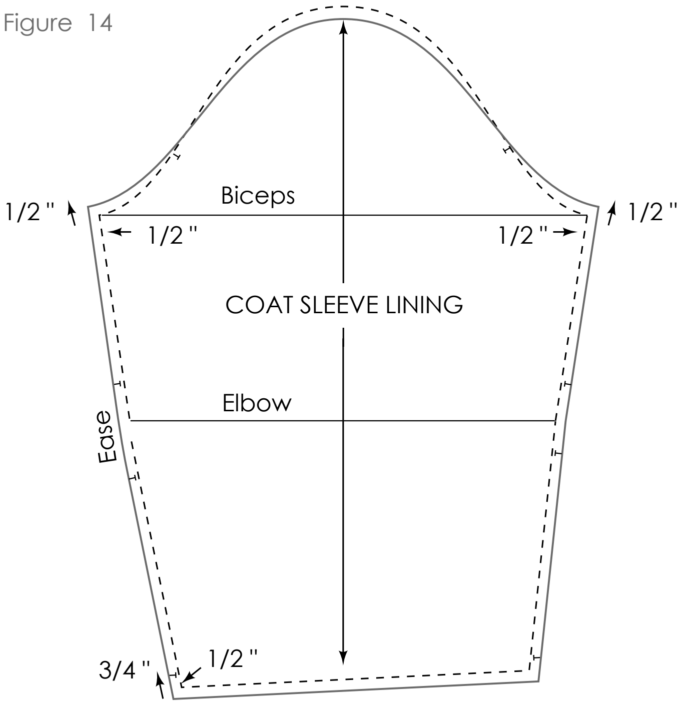


Figure 14
1/2 "
1/2 "
Biceps
1/2 "
1/2 "
COAT SLEEVE LINING
Elbow
Ease
3/4 "
1/2 "

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

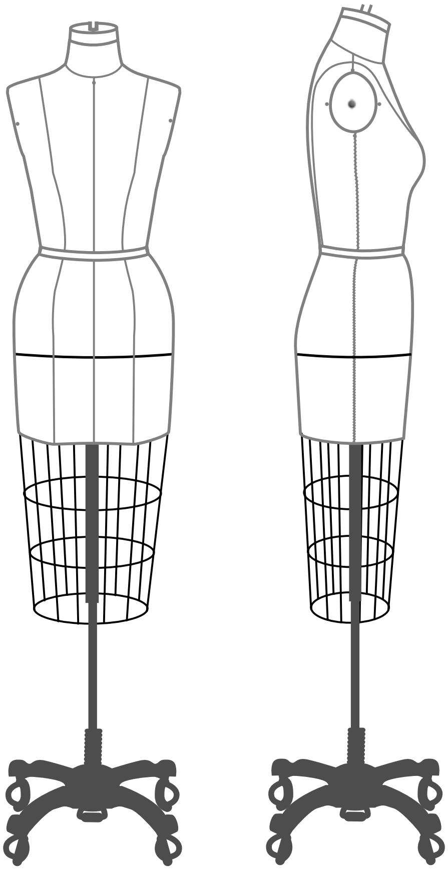
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

*Measuring the Arm

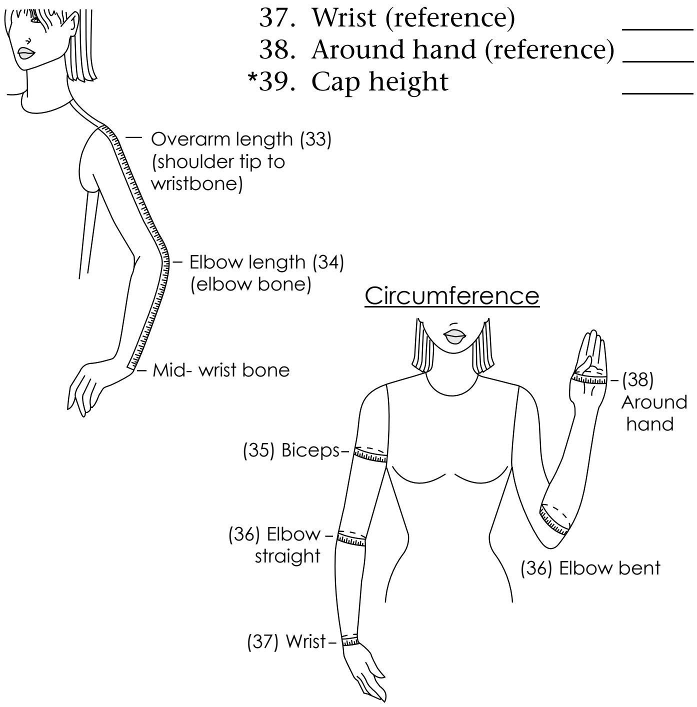
Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____


Length
Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone
Circumference
(38) Around hand
(35) Biceps
(36) Elbow straight
(36) Elbow bent
(37) Wrist

ANSWERS TO SELF-EVALUATION TESTS

Mandarin collar; front pocket; no pocket on sleeve; curve styleline; with gathers; split bishop sleeves; larger cuff; no yoke; studs; hemline not curved.

This page intentionally left blank

Pants and Jumpsuits

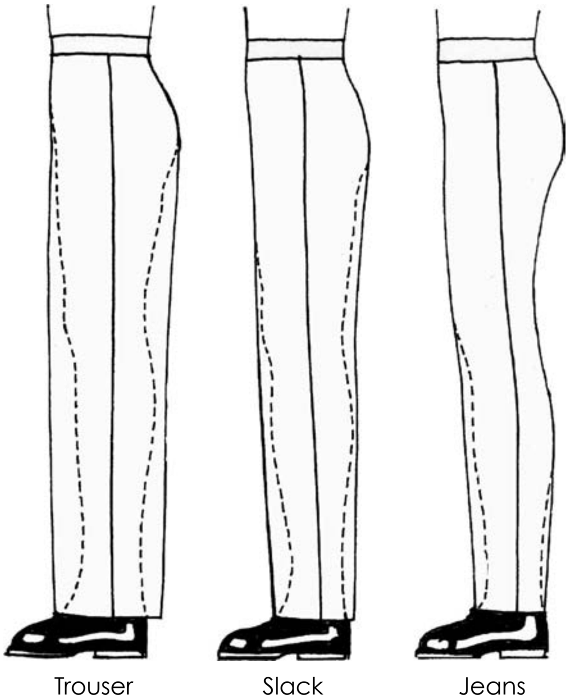
INTRODUCTION TO PANTS
TROUSER FOUNDATION
    Trouser Draft
SLACK FOUNDATION
    Slack Draft
JEAN FOUNDATION
    Jean Draft
WAIST OPTIONS
    Waist Band Draft
    Waist Band Controls the Waist
    Elastic Controls the Waist
    Partial Waist Band and Elastic
    Grunge Pant
PANT VARIATIONS
    Pleated Trouser
    Baggy Pant
    Western Jean
    Bell-Bottom Pants
GUIDELINE MARKING FOR PANT DERIVATIVES
    Definitions
    Flared Shorts
    Short-Shorts
    Knickers—Design 3
JUMPSUIT FOUNDATION
    Jumpsuit Draft
    Jumpsuit with Blousing
    Oversized Jumpsuit
    Tank-Top Jumpsuit
    Bib Overall

From Chapter 36 of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

INTRODUCTION TO PANTS

Three pant foundations are illustrated in this chapter. Consider size, height, and age of the model before plotting the designs. The back pant can be finished with a waist band, elastic, or a combination of both. The trouser foundation fits loosely at the crotch level. The slack foundation fits closer and the jean foundation fits very closely.

The pant foundations are drafted for sizes 3 to 6X and 7 to 14 (16), for boys and girls.



TROUSER FOUNDATION

The trouser is a loosely fitted pant that hangs straight from the buttocks. The pleated trouser and baggy-style pants are based on this foundation. For waistband options, see Waist Options section later in this chapter.

Measurements Needed

- (18) Waist to ankle (pant length) __________.
- (27) Crotch depth __________.
- (15) Hip arc, plus 1/2 inch F __________ B_______.
- (14) Waist arc, plus 1/2 inch F __________ B_____.
- (20) Upper thigh __________.
- (24) Foot entry __________.

Trouser Draft

Figure 1

A–B = pant length (18).
A–C = crotch depth, plus 3/4 inch (27).
A–D = one-half of A–C.
B–E = one-half of B–C, plus 1 inch. Mark.
Square out from A, D, C, E, and B.
C–F = back hip arc (15).
Square up from F to waist. Label G.
F–H = one-half of C–F. Mark.
C–I = front hip arc (15).
Square up from I to waist. Label J.
I–K = one-fourth of C–I. Mark.

Figure 1

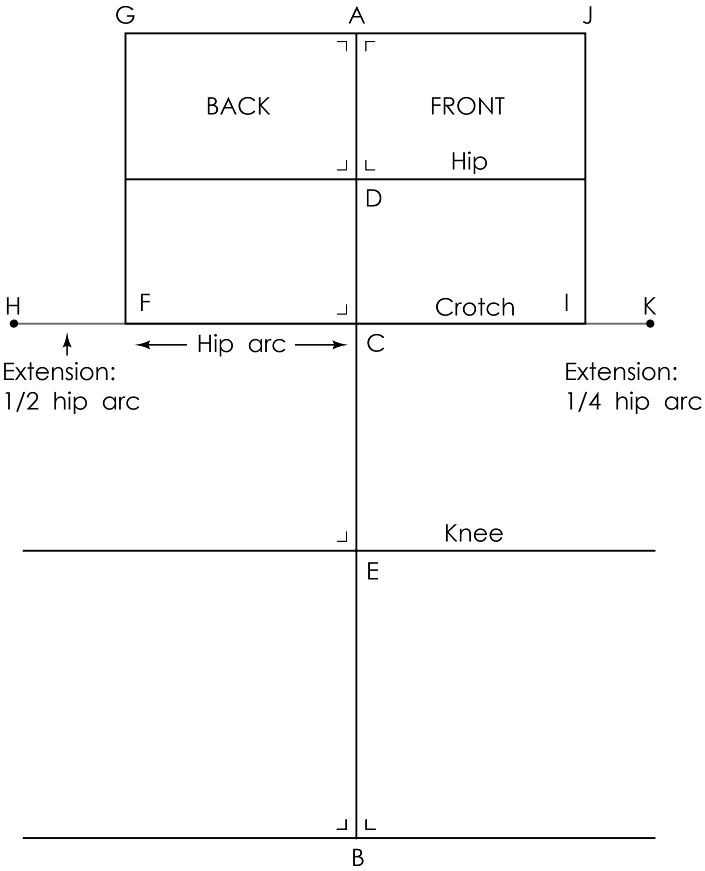


Figure 2

G–X = 1/2 inch, squared up 1/4 inch.

Draw a straight line from X to crotch level, touching hip level. Draw crotch curve from H and K to hip level.

A–L = 1/8 inch.

A–M = 3/8 inch.

Draw hipline from waist to just above D.

Draw waistline from X to L.

H–N = one-half of H–C. Mark.

K–O = one-half of K–C. Mark.

Square grainlines through N and O.

Dart Intake

Ignore dart intake if waist band is elastic.

- Subtract back waist arc (14), from X–L length. The difference is dart intake.
- Mark dart intake 1 inch from the grainline (length: 3 to 4 inches).
- Subtract the front waist arc (14) from M–J line. The difference is dart intake.
- Mark dart intake on each side of the grainline (length: 2 1/2 to 3 inches).
- Inseam guidelines are drawn 1/2 inch in from points H and K. Leglines are curved from H and K to knee levels. Mark 1" from B and draw side seams to D.

Figure 2

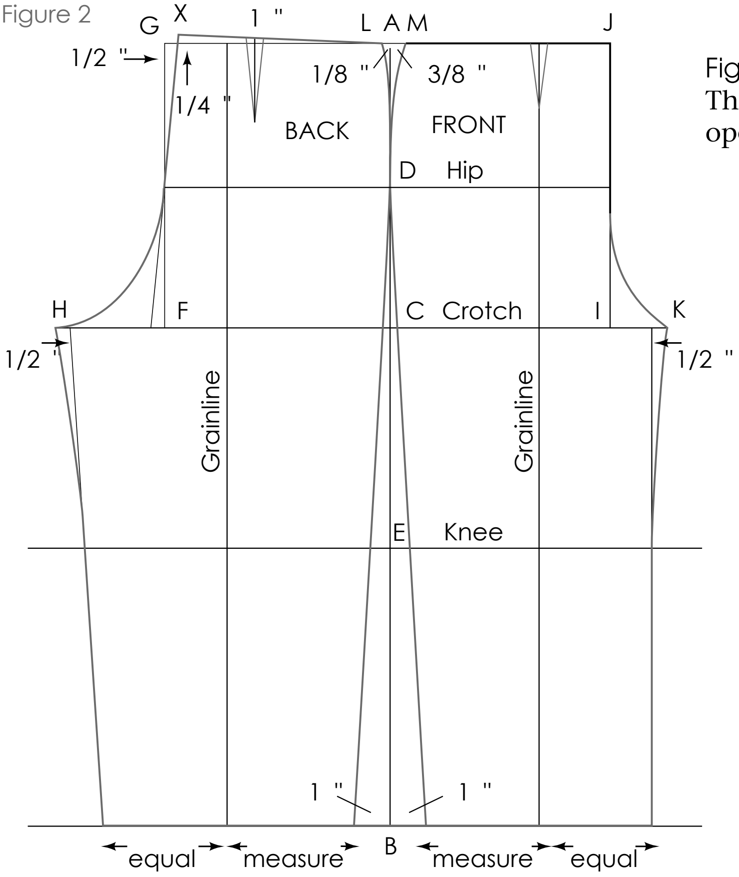
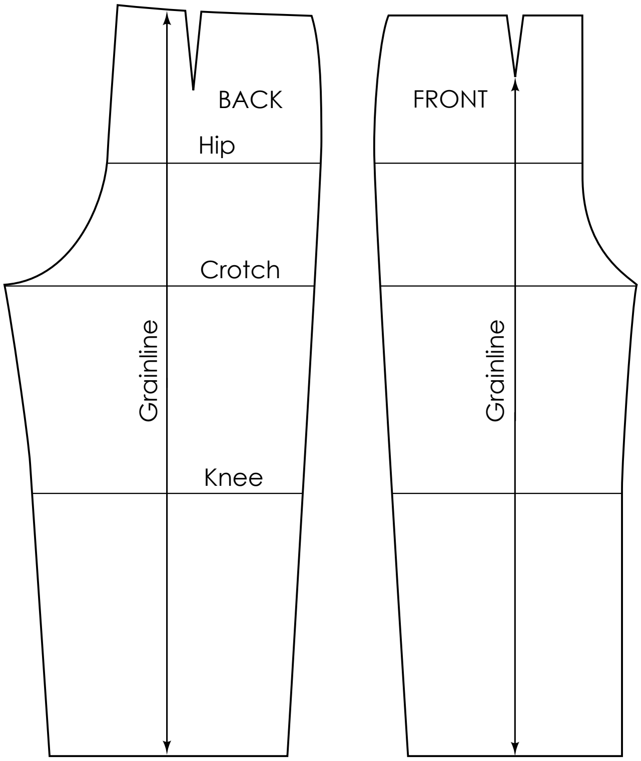

G
X
1 "
L A M
J
1/2 "
1/4 "
1/8 "
3/8 "
BACK
FRONT
D Hip
H
F
C Crotch
I
K
1/2 "
1/2 "
Grainline
Grainline
E Knee
1 "
1 "
B
equal
measure
measure
equal

Figure 3

The finished patterns are illustrated. Test fit only after the waist is secured with a waist band and zipper (or elastic).

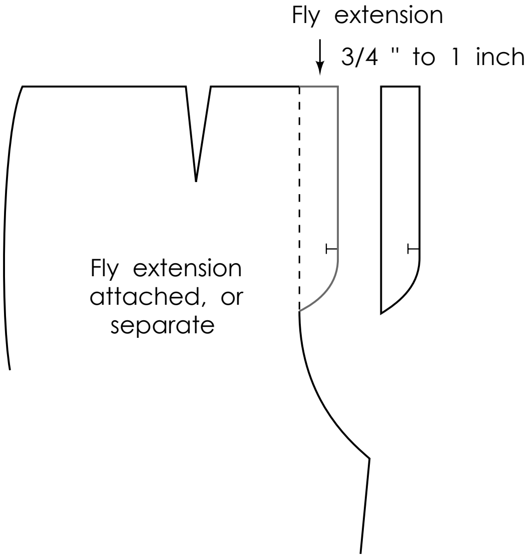
Figure 3


BACK
Hip
Crotch
Grainline
Knee
FRONT
Grainline

Figures 4, 5

The fly front can be in one with the pant or developed as a separate pattern.

Figure 4
Figure 5


Fly extension
3/4 " to 1 inch
Fly extension
attached, or
separate

SLACK FOUNDATION

The slack draft is based on the trouser foundation. It is an appropriate draft for sizes 3 to 6X and 7 to 14, for girls and boys. The slack pant fits closer than does the trouser. The slack pant is adaptable for many designs and derivatives.

Slack Draft

Figure 1

- Trace the front and back trouser pant. The crotch level is raised 3/8 inch and the pant leg is tapered.

Figure 1

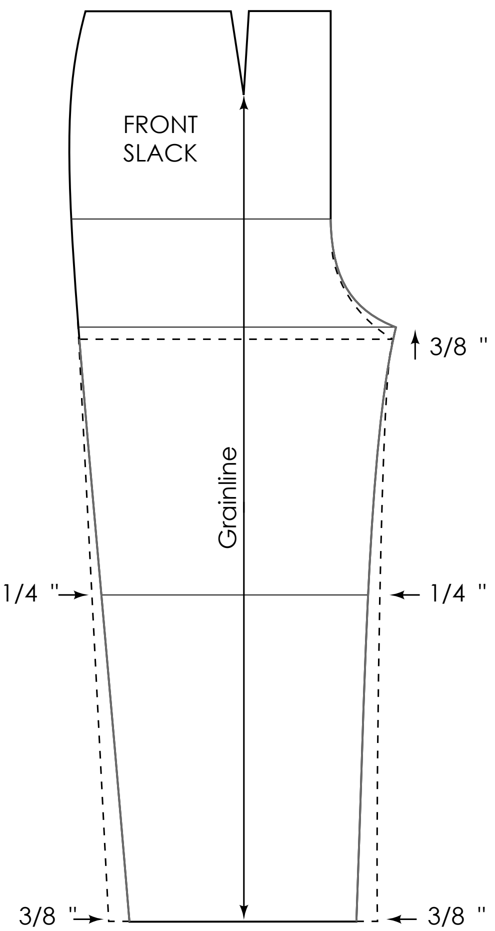

FRONT SLACK
Grainline
3/8 "
1/4 "
1/4 "
3/8 "
3/8 "

Figure 2

The back pant is adjusted to fit closer to the figure by shortening crotch point and raising crotch 3/8 inch. The grainline must be centered to balance the pant.

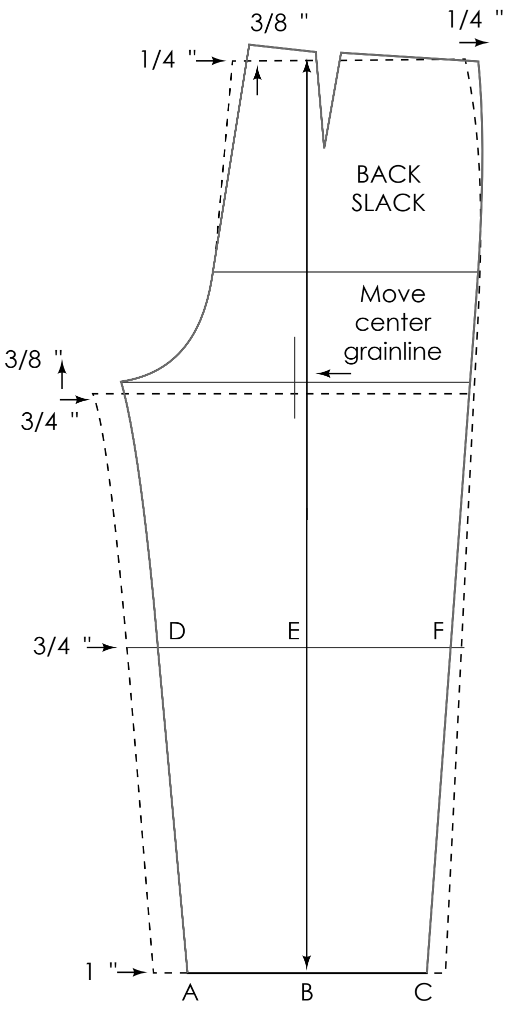
B–C = A–B.

E–F = D–E.

- Redraw the legline.
- Complete the pattern for a test fit.

See Waist Options section later in this chapter for waistline options.

Figure 2


3/8 "
1/4 "
1/4 "
BACK SLACK
Move center grainline
3/8 "
3/4 "
3/4 "
D
E
F
1 "
A
B
C

JEAN FOUNDATION

The jean foundation fits to the contour of the figure. Stylelines associated with the jean pant apply also to the slack and trouser foundations (yokes and fly fronts). It is appropriate for boys and girls, 3 to 6X and 7 to 14.

For Waistline Options, see waist options section later in this chapter.

Measurements Needed

- (18) Waist to ankle (pant length) _______.
- (27) Crotch depth _______.
- (15) Hip arc, plus 3/8 inch F _______ B_______.
- (14) Waist arc, plus 1/4 inch F _______ B_______.
- (20) Upper thigh _______.
- (21) Knee measurement _______.
- (24) Foot entry _______.

Jean Draft

Figure 1

A–B = pant length.
A–C = crotch depth. Mark.
A–D = one-half of A–C. Mark.
B–E = one-half of B–C, plus 1 inch. Mark.
C–F = back hip arc. Square up to waist level. Label G.
F–H = one-fourth hip arc, plus 1/2 inch.
C–I = front hip arc.
Square up from I to waist. Label J.
I–K = 1 1/2 inches.

Figure 1

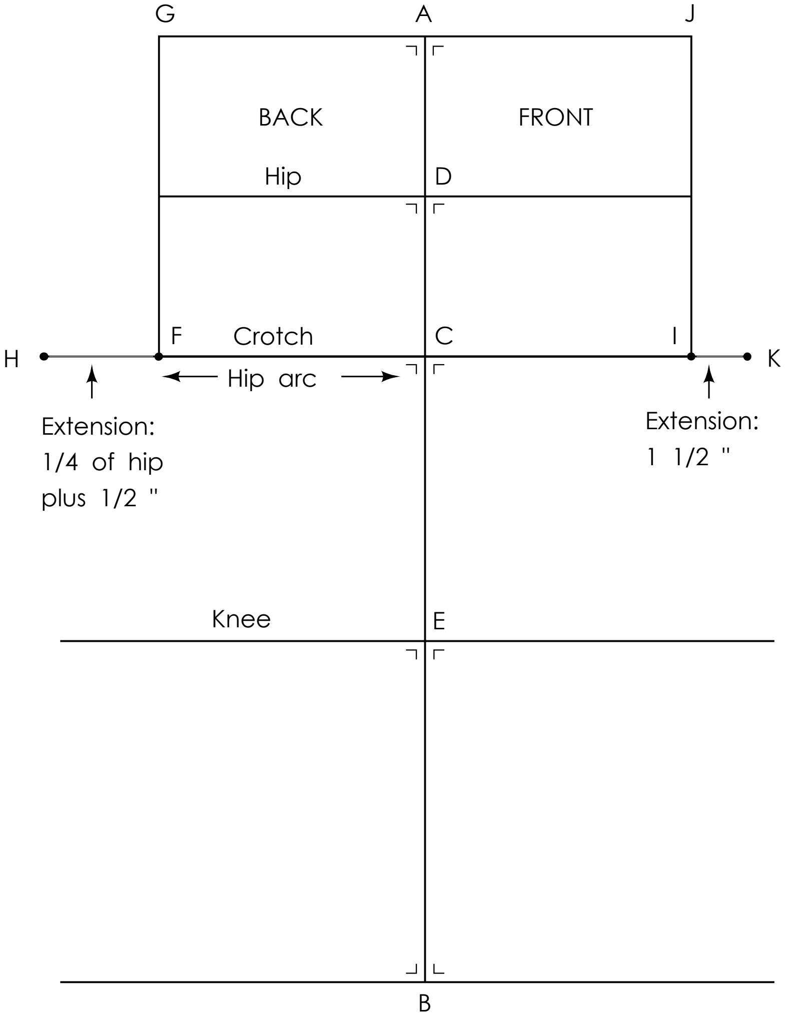

G
A
J
BACK
FRONT
Hip
D
F
Crotch
C
I
H
K
Hip arc
Extension: 1/4 of hip plus 1/2 "
Extension: 1 1/2 "
Knee
E
B

Figure 2

G–L = 1/2 inch (sizes 3 to 7) and square up 5/8 inch. 1 inch (sizes 7 to 14) and square up 3/4 inch.

Draw a straight line from L to crotch level, touching hipline.

L–M = waist arc, plus 1/4 inch. *Use red pencil to complete back draft if M overlaps A.*

Draw a line from L to M for waist.

Draw hipline curve from M to D.

J–N = 1/4 inch in and squared up 1/4 inch. Draw a straight line from N to crotch level, touching hipline.

N–O = waist arc, plus 1/4 inch. Mark.

Draw line from N to O.

Draw crotch curve from K to hipline.

Grainline

- Mark 1/4 inch in from each side of C. Relabel C.
- Mark centers between C–H (back) and C–K (front). Square up and down through front and back patterns for grainline.

Legline

- Draw lines up from hem to knee to H and K using the measurements given.
- Draw inward curves from knee to H and K.
- Draw an outward curve down from D and blending with an inward curve up from knee. Blend with hipline curve.
- If M and O overlap, place paper under the pant draft and trace either the front or back pant before cutting pants apart.

Figure 2

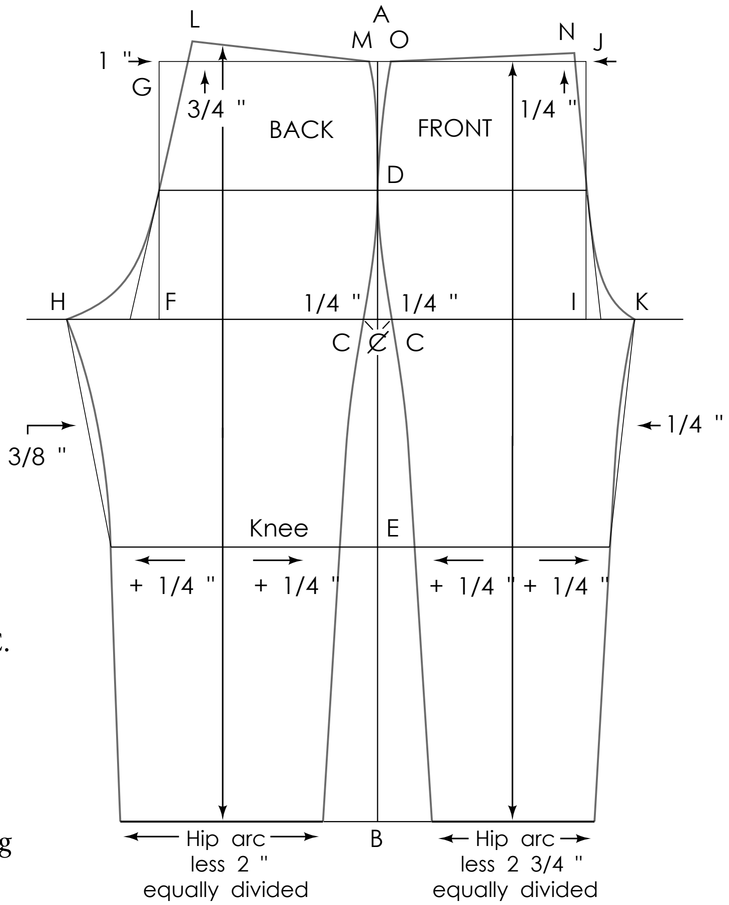
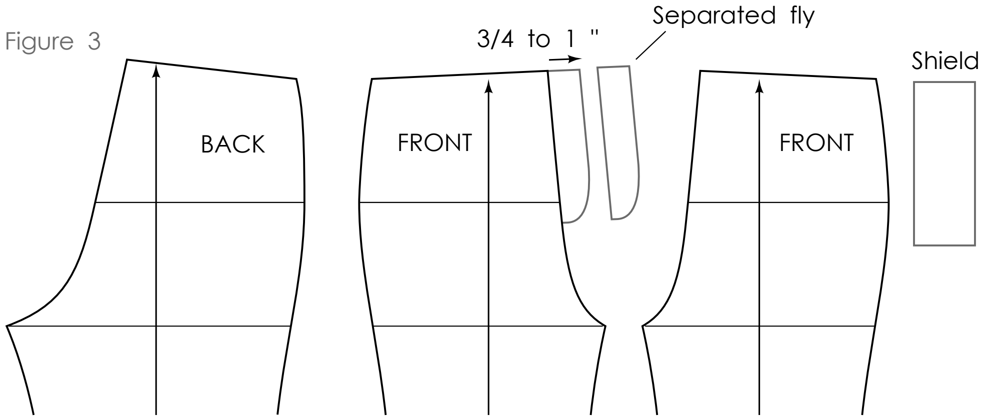

L
A
M O
N
J
1 "
G
3/4 "
BACK
FRONT
1/4 "
D
H
F
1/4 "
1/4 "
I
K
C
C
C
1/4 "
3/8 "
Knee
E
+ 1/4 "
+ 1/4 "
+ 1/4 "
+ 1/4 "
Hip arc less 2 " equally divided
B
Hip arc less 2 3/4 " equally divided

Figure 3 Fly Instruction

Decide which side the fly will be added (right side female or left side male). The fly can be extended from the pant or a separate fly can be stitched to the front. The shield is twice the width of the fly and 1 inch longer.

Follow the sewing instructions for stitching the fly, waist band with loops and jean pocket.

Figure 3


Separated fly
3/4 to 1 "
Shield
BACK
FRONT
FRONT

WAIST OPTIONS

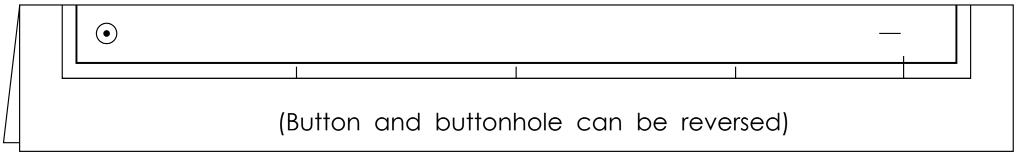
The pant or skirt can be secured to the waist in one of four ways. Models sized 3 to 6X generally have part or all of the waistline encased with elastic. Sizes 7 to 14 models may desire a regular waist band attached to the garment.

Waist Band Draft

Figure 1

- Draw line equal to waist measurement, plus 1-inch extension.
- Fold paper. Square down 1 inch for width of band.
- Add seam allowance; notch for extensions. Cut from paper.

Figure 1


(Button and buttonhole can be reversed)

Waist Band Controls the Waist

Figures 2a, b

Waist bands are used when the garment has dart control at the waistline or when a garment like the jean is developed without darts. See previous page.

Elastic Controls the Waist

Figures 3a, b, c

The front and back waistline is raised 2 3/4 inches as a casing for the insertion of 1-inch elastic. The elastic should measure the same as the model's waistline. The elastic is overlapped 1 inch. This shortens the elastic enough to hold garment securely to the waist.

For more fullness, add to the side seam of the front and back pant, or add only to the back pant, see Figure 3a.

Figure 2a

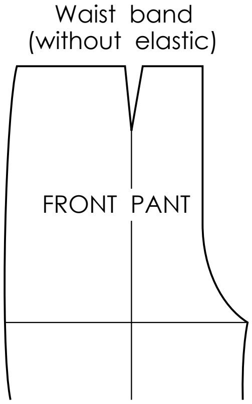

Waist band
(without elastic)
FRONT PANT

Figure 2b

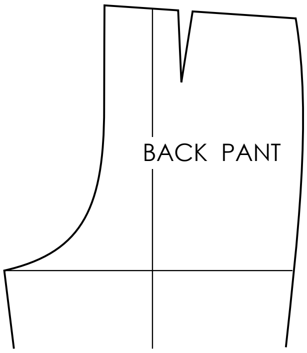


Figure 3 a

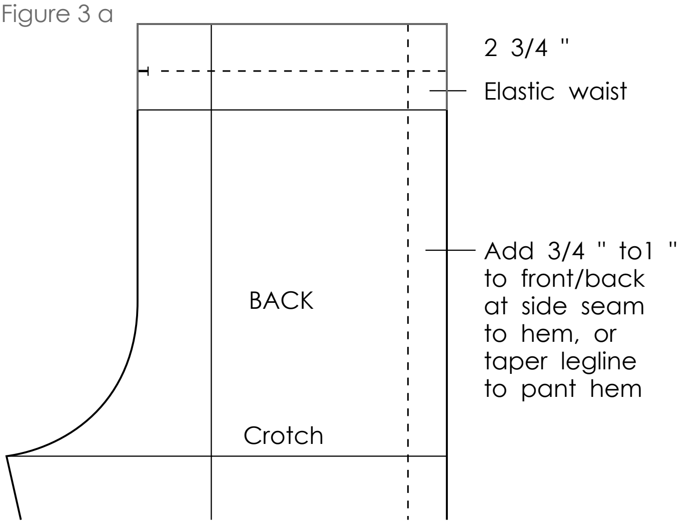

2 3/4 "
Elastic waist
Add 3/4 " to1 "
to front/back
at side seam
to hem, or
taper legline
to pant hem
BACK
Crotch

Figure 3b

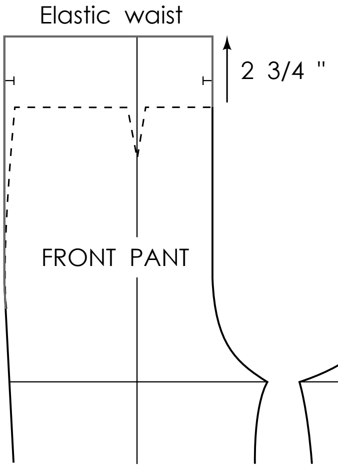
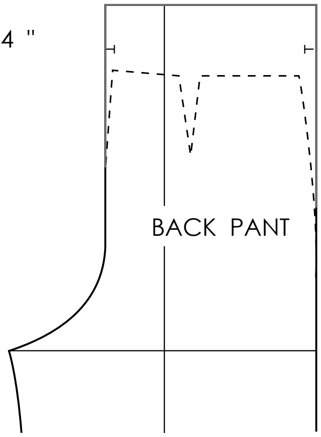

Elastic waist
2 3/4 "
FRONT PANT

Figure 3c



Partial Waist Band and Elastic

Figures 4a, b, c

The elastic is placed in the back with a partial waistband in the front. The elastic can also end at the side front of the garment (as seen in jumpsuits). The back waistline is raised 2 3/4 inches as a casing for 1-inch elastic. The front waist band pattern measures one-half of front waist less ease allowance (waist dart is stitched). The elastic and waist band are joined at the side seams. Add to the side seam for a more casual fit.

Figure 4 a

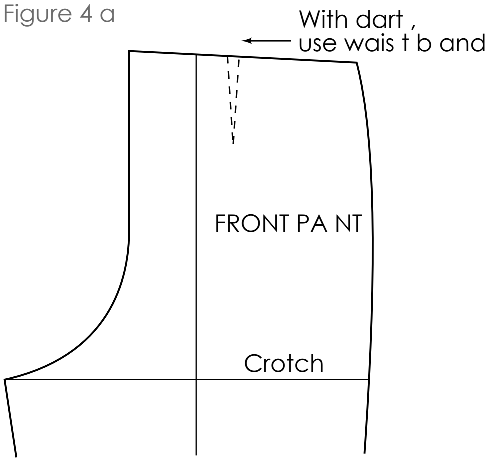

With dart,
use waist band
FRONT PANT
Crotch

Figure 4b

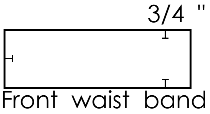
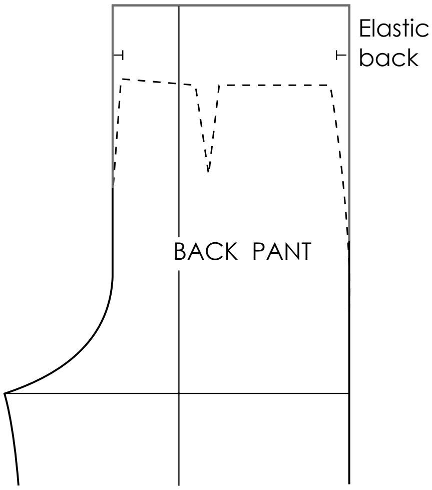

3/4 "
Front waist band

Figure 4c


Elastic back
BACK PANT

Grunge Pant

The trouser foundation is traced and modified to create a grunge pant. The grunge pant has a deep crotch and wide legline that can be of any length. Create your own design on this foundation.

Follow the illustration and measurement to develop the pant.

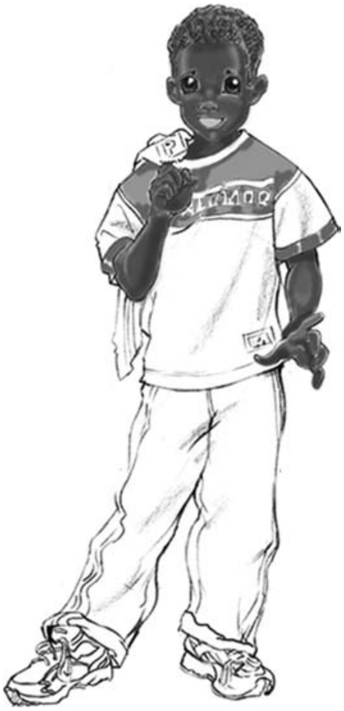
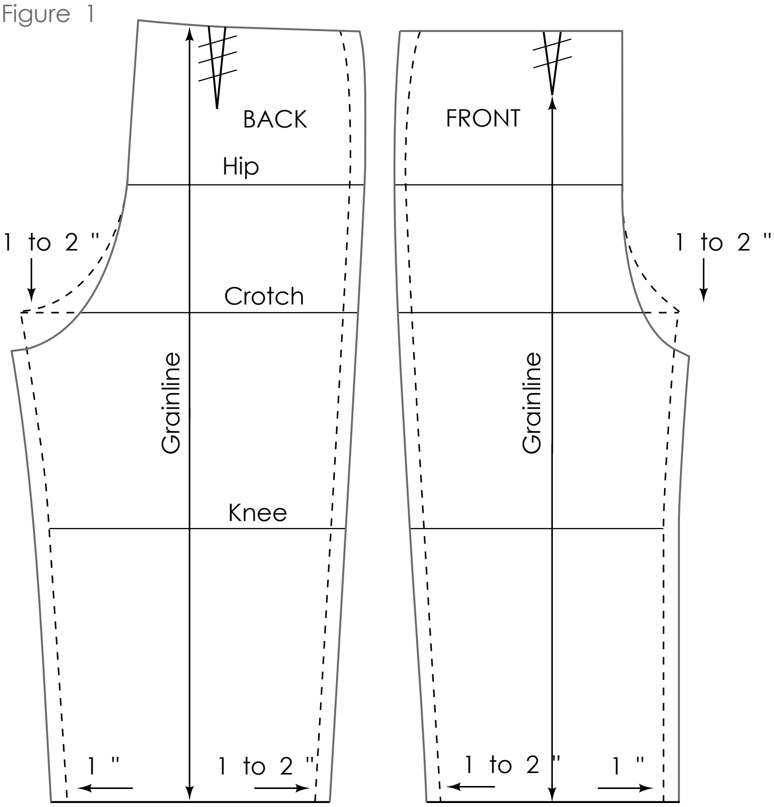


Figure 1


BACK
Hip
1 to 2 "
Crotch
Grainline
Knee
1 "
1 to 2 "
FRONT
1 to 2 "
Grainline
1 to 2 "
1 "

PANT VARIATIONS

Pleated Trouser

The pleated trouser can also be drafted from the slack pant for a closer fit. The pant design is for sizes 4 to 6X and 7 to 14 for boys and girls. More than one pleat can be created by spreading more than one place on the draft. The pant can also be cuffed.

Design Analysis

The pant is plotted for slash placement (one pleat is illustrated, but by placing more slash lines, more pleats can be added to the pant draft). The fly front can be placed on either side of the front pant. The back pant is basic.

Figure 1

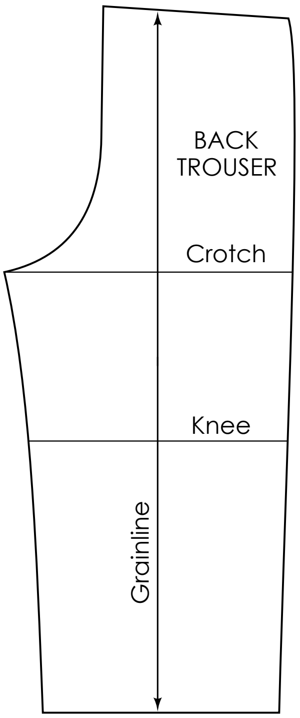
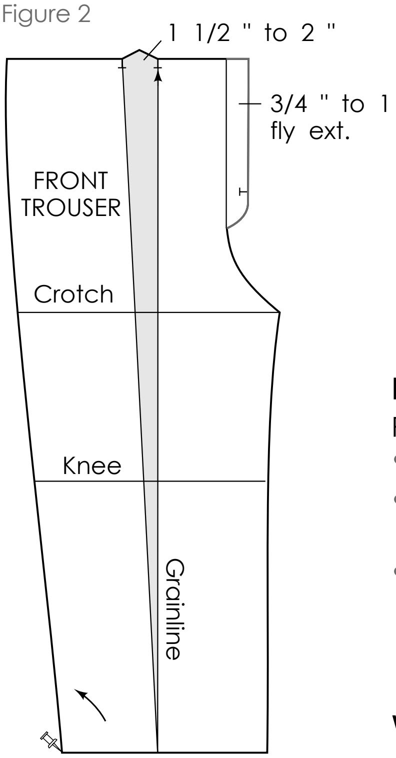
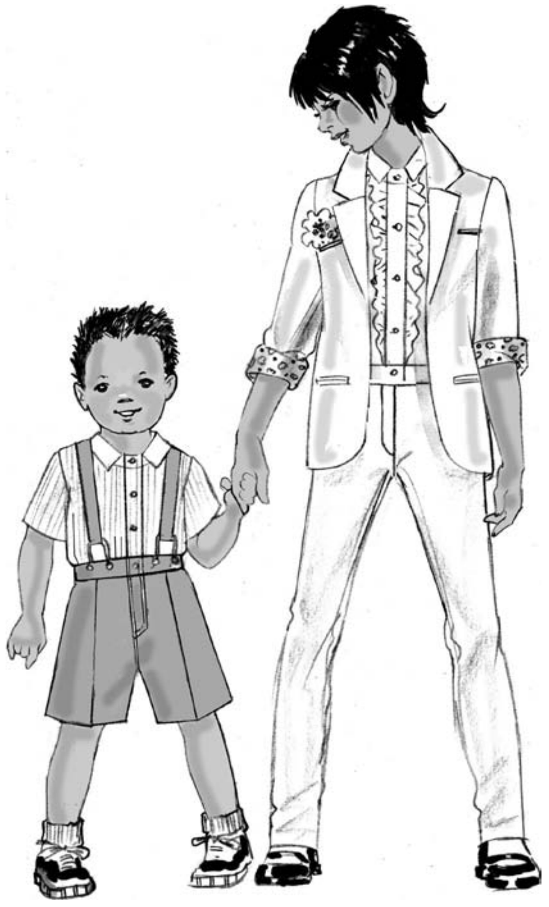


Figure 2





Pleated Trouser Draft

Figures 1, 2

- Trace the front and back trouser pant.
- Slash at grainline of the pant and spread 1 1/2 to 2 inches for pleat intake.
- For the fly front, add 3/4 to 1 inch to pant front (the length of the fly should be at least 1 inch longer than the zipper).

Waist Band Options

Decide the type of waist band best suited to the design. See Waist Options section two pages back.

Baggy Pant

The trouser pant is the base for pants that are very full through the legline. The draft is suitable for sizes 3 to 6X and 7 to 14, for boys or girls.

Design Analysis

This is a fun pant, to be made as full as desired and cut to any length. Fullness is added through the sides of the pattern.

Design 1

The pant is gathered at the waist and the hemline of the pant and is secured with elastic or may be sewn to a band at waist and ankle. Design 2 is a thought problem.

Baggy Draft

Figure 1

- Trace front and back trouser, spacing the patterns to the amount of fullness desired.
- Extend the waistline 2 3/4 inches for 1-inch elastic.
- Cut 1-inch elastic equal to the waist measurement. One inch is used for lapping and stitching together.
- Cut 1/2-inch elastic equal to foot entry measurement plus 1 inch. One inch is used for lapping and stitching together.
- Lower the crotch (it may be lower for a more exaggerated look).
- Extend the pant length for blousing.
- Taper the legline to control fullness.
- Complete the pattern for a test fit.

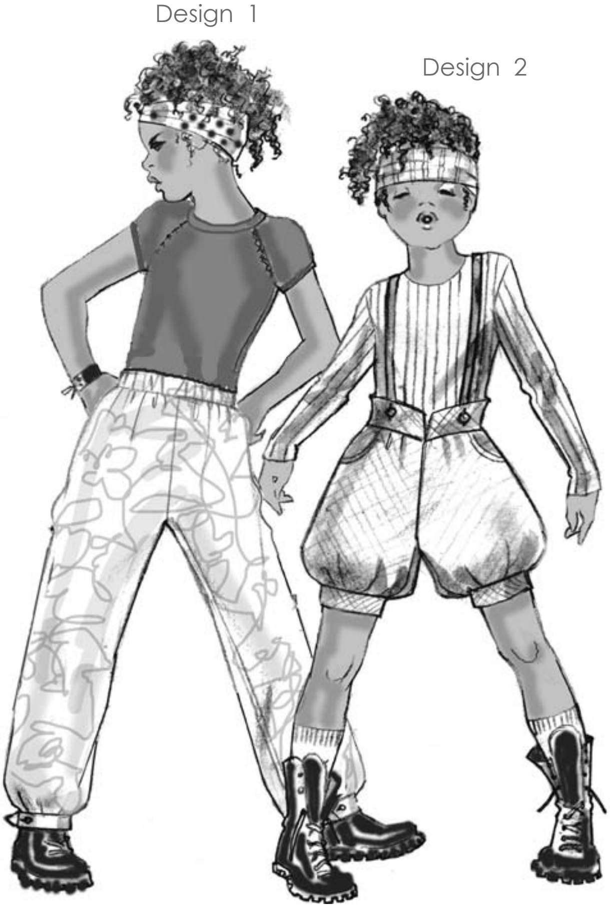
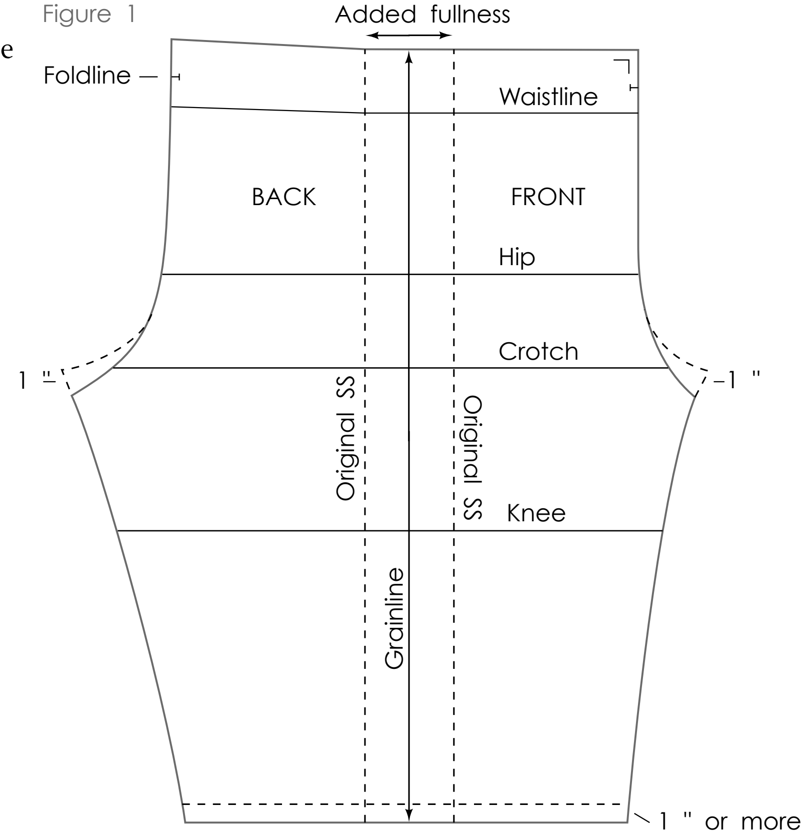

Design 1
Design 2

Figure 1


Added fullness
Foldline
Waistline
BACK
FRONT
Hip
Crotch
1 "
1 "
Original SS
Original SS
Knee
Grainline
1 " or more

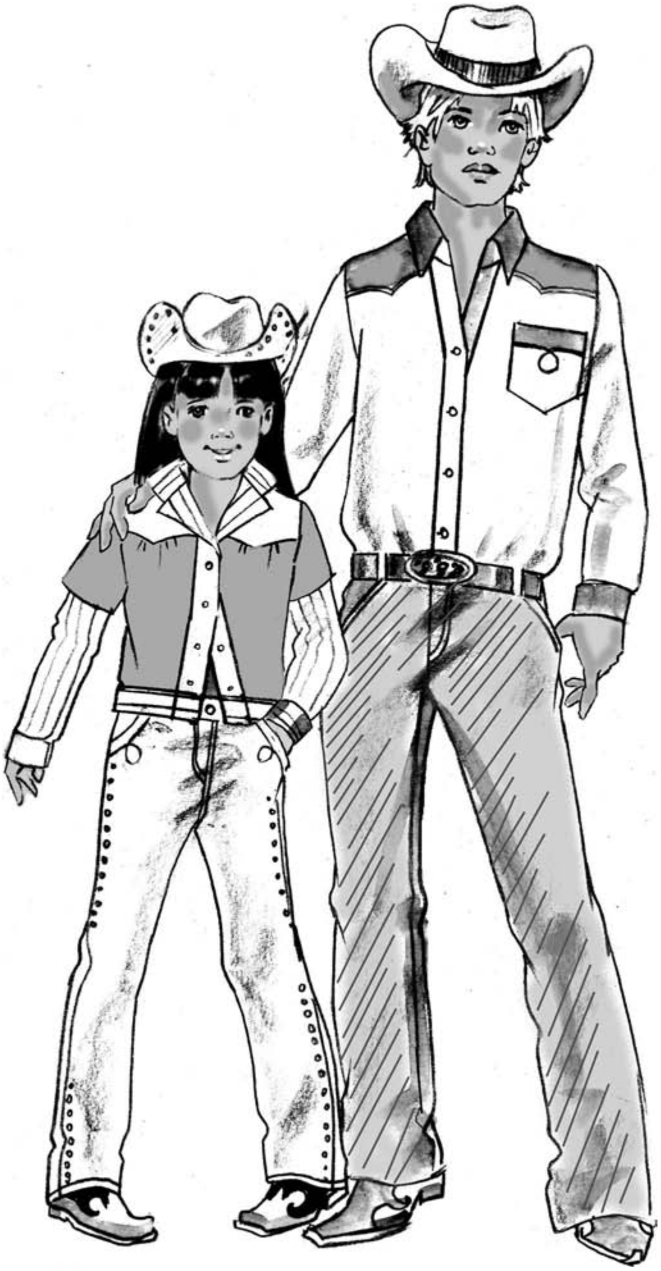
Western Jean

The standard jean pant is based on the jean foundation. The design is for 3 to 6X and 7 to 14, for boys and girls. The fly front for girls may be on either side.

Design Analysis

The traditional western jean pant can be developed with a tapered legline or designed as a boot pant.

Determine the type of waistline best suited to the design. See Waist Options section earlier in this chapter.



Figures 1, 2

- Trace front and back jean patterns.
- Plot the patterns, as illustrated.

Figure 1

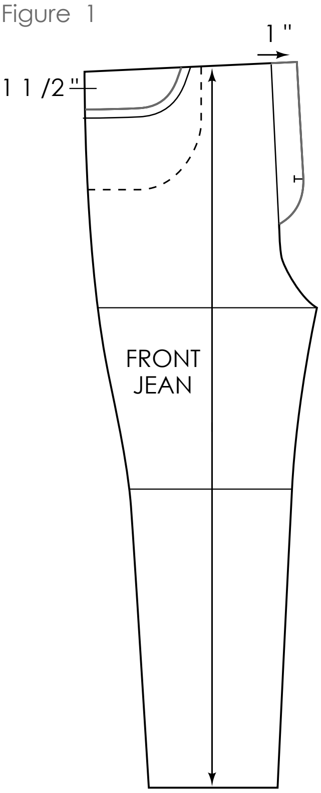
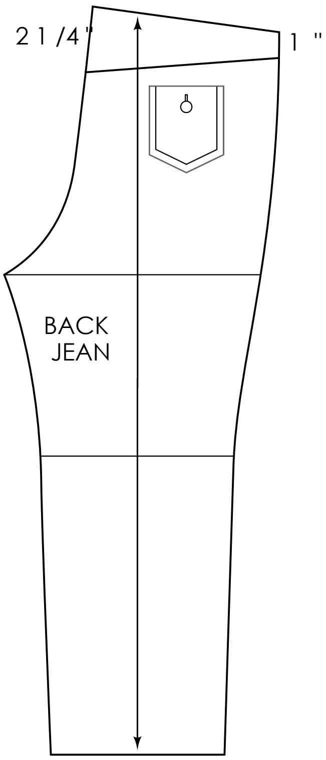

1 "
1 1 /2"
FRONT
JEAN

Figure 2


2 1 /4"
1 "
BACK
JEAN

Figures 3a, b, c Front

- Place paper under the pocket section of the draft and trace pocket backing and facing.
- Trim the pocket styleline from the pattern.

Figure 3a

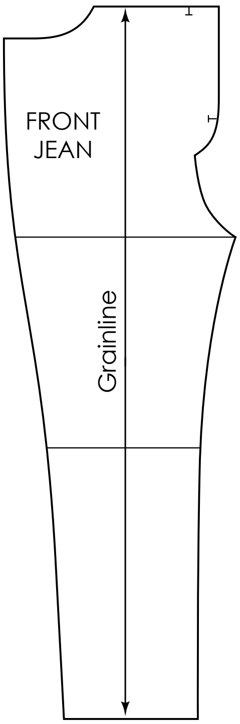

FRONT
JEAN
Grainline

Figure 3b

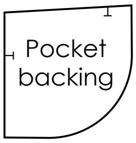
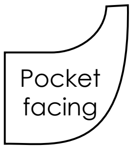

Pocket
backing

Figure 3c


Pocket
facing

Figures 4a, b, c

- Place paper under yoke part of the draft and trace back yoke.
- Trace back pocket from the pattern. Figure 4C
- Back pant. Figure 4a

Figure 4 a

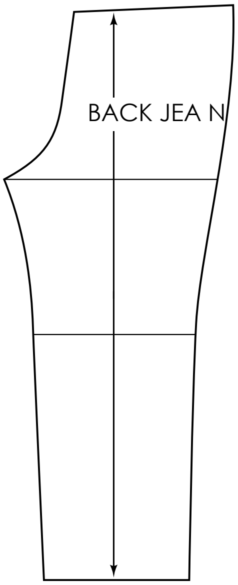


Figure 4 b

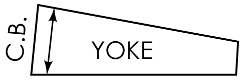
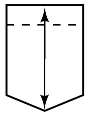


Figure 4 c



Back pocket

Figures 5a, b

- Waist band is illustrated. Cut on fold or cut two pieces. If back elastic is required, add 1 inch to center back (See Partial Waistband and Elastic section, Figures 4b and c, earlier in this chapter.)

Figure 5a

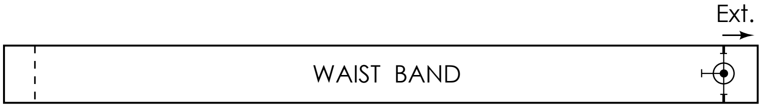
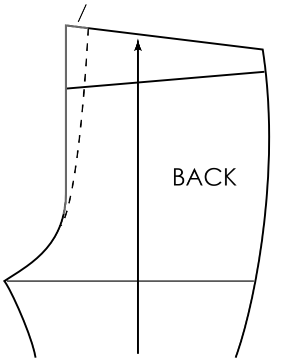

Ext.
WAIST BAND

Figure 5b


Add one inch for elastic waist band
BACK

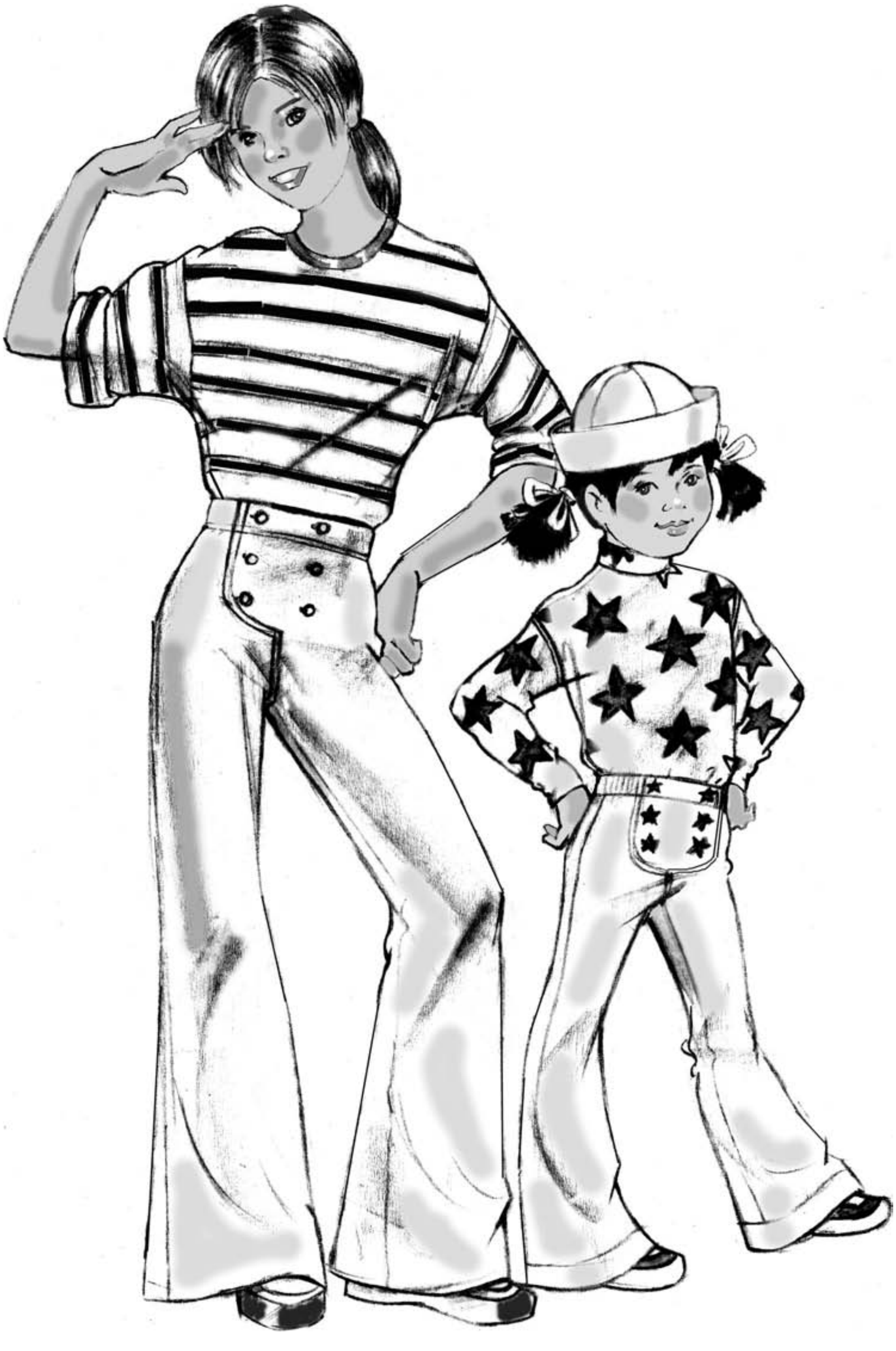
Bell-Bottom Pants

The bell-bottom pant is based on the jean foundation pattern for sizes 3 to 6X and 7 to 14, for boys and girls.

Design Analysis

Flared leglines distinguish this pant style. The flared leg can be as wide as desired and can start from any point along the legline. The stylized opening has buttons and buttonholes for control.

Determine the type of waistline best suited to the design. See Waist Options section earlier in this chapter.



Flared Legline

Figures 1, 2

- Use illustration as a guide to develop the flared pant.

Figure 1

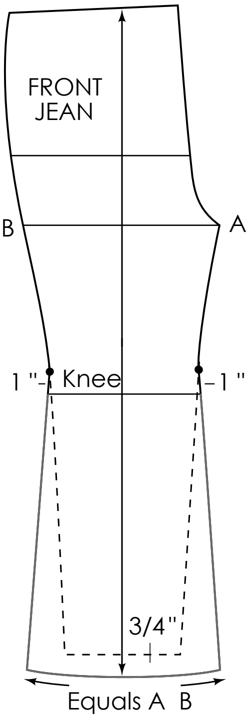
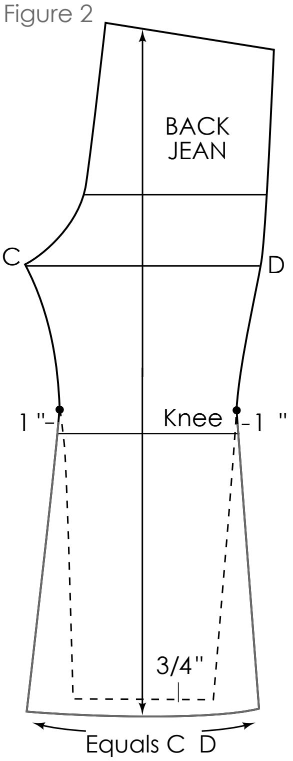

FRONT
JEAN
B
A
1 "
Knee
1 "
3/4"
Equals A B

Figure 2


BACK
JEAN
C
D
1 "
Knee
1 "
3/4"
Equals C D

Uneven Flared Legline

Figures 3, 4

- Use illustration as a guide to develop the uneven flared hemline.

Figure 3

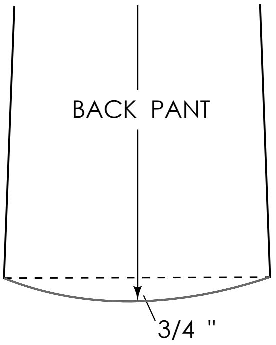
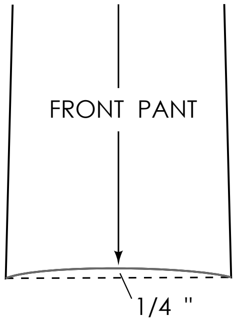

BACK PANT
3/4 "

Figure 4


FRONT PANT
1/4 "

Facing Pattern

- For the facing, trace the pant.

Figures 5, 6

- Use illustration, design, size, and height of the model as guides in plotting the pattern.

Suggestion: Trace two copies of the flared leg pant, extending the center lines for the overlap on one copy. Save the original pant for other designs.

Figure 5

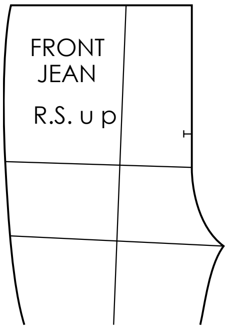

FRONT
JEAN
R.S. u p

Figure 6

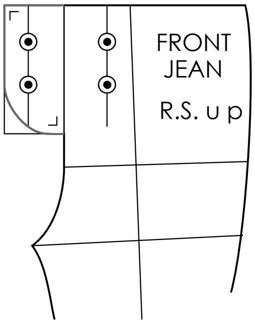
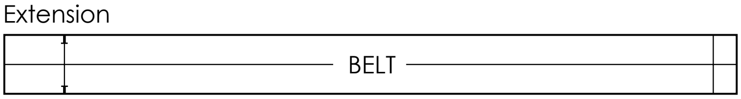

FRONT
JEAN
R.S. u p

Figure 7

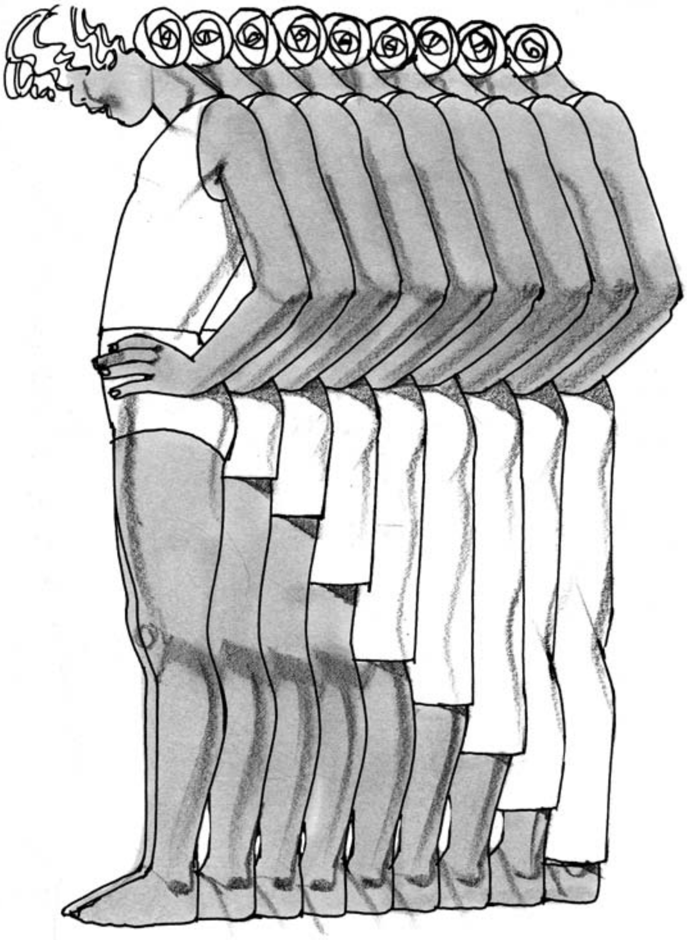
- If a waist band is used, add an extension for the overlap.

Figure 7


Extension
BELT

GUIDELINE MARKING FOR PANT DERIVATIVES

Pant derivatives have shorter leglines than that of the pant foundation. For convenience in developing other designs, mark the varied leglines on the patterns for reference. Tapered leglines may require a faced opening for foot entry. Lacings, zippers, or buttons and buttonholes are suggested for leg openings.



Definitions

Short-shorts. Placed 3/4 to 1 inch below crotch level at inseam and ending 3/4 to 1 inch above crotch level at side seam.

Shorts. Placed 1 1/4 to 1 1/2 inches below crotch level.

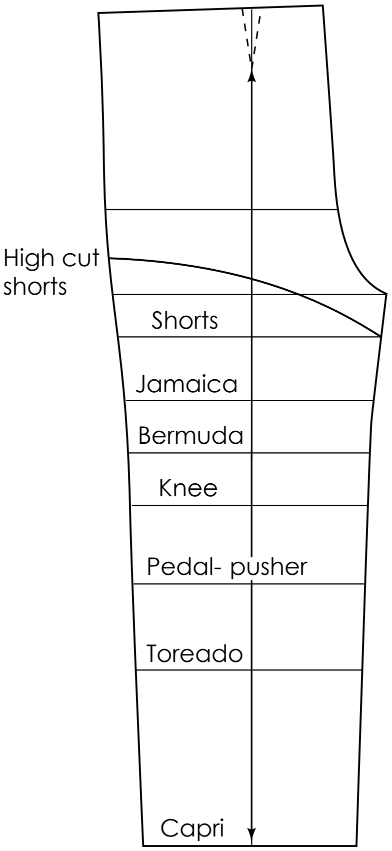
Jamaica. Placed halfway between crotch and knee.

Bermuda. Placed between knee and jamaica.

Pedal-pusher. Placed 2 inches down from knee.

Toreador. Placed between knee and ankle.

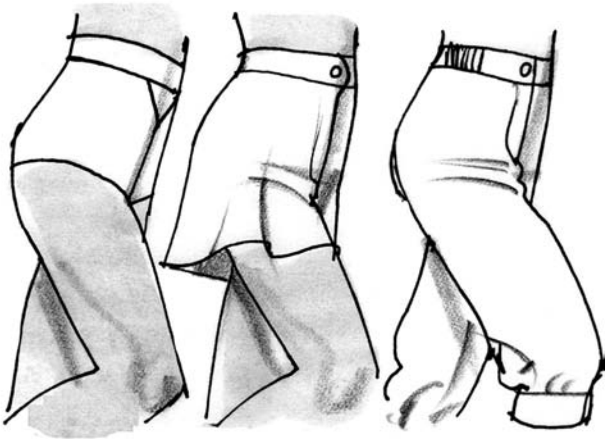
Capri. Placed 3/4 inch above ankle.



Flared Shorts

The flared shorts draft can be based on the trouser or slack pant. The design is for sizes 3 to 6X and 7 to 14.

Design 1 Design 2 Design 3



Short- short Flared short Knickers

Design Analysis—Design 2

Two examples are illustrated for the flared short: a basic flare and added flare for greater hemline sweep. Flare is added to the inside curve of the legline to balance the fullness.

Waistline Options

To decide the type of waistline best suited to the design, see Waist Options section earlier in this chapter.

Basic Flared Shorts

Figures 1, 2

- Trace the front and back pant and draw pant length.
- Mark slash lines from dart points to hem of the pant. Slash; close darts.
- Spread for flare at curve of the dart legs.

Figure 1

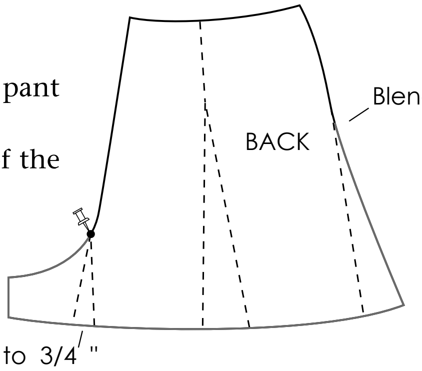
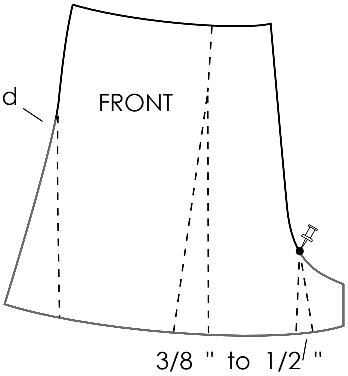


Figure 2



Shorts with Added Flare

Figures 3, 4

- Slash pattern to waistline and through dart point. Spread for added flare to the desired amount.
- Add flare to the side seams of the patterns equal to one-half the space of A–B.

Figure 3

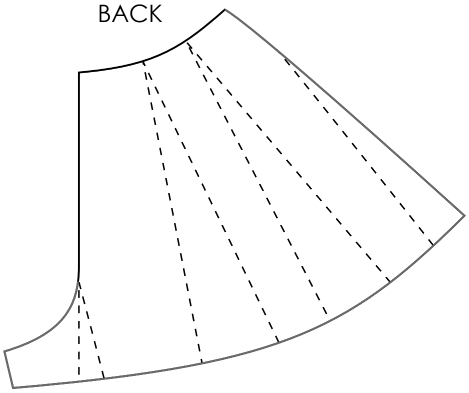
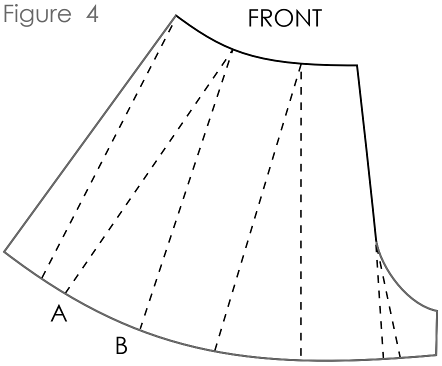


Figure 4



Short-Shorts

The high-cut short-short is for sizes 7 to 14 and is based on either the slack or jean pant.

Design Analysis—Design 1

The legline is plotted above crotch level at the side seam and is tightened at the inside curve of the inseams to fit closely around the upper leg.

Waistline Options

To decide the type of waistline best suited to the design, see Waist Options section earlier in this chapter.

Figures 1, 2

- Trace the front and back patterns and mark inseam 1" to 1 1/2".
- Mark slash lines and draw curve of the pant legs.
- Cut slash lines and overlap 1/4 inch.
- Retrace patterns, blending the legline and crotch curves.
- Taper the inseams 1/4 inch.
- For the legline facing, trace the legline curve (draw facing 3/4" wide).

Figure 1

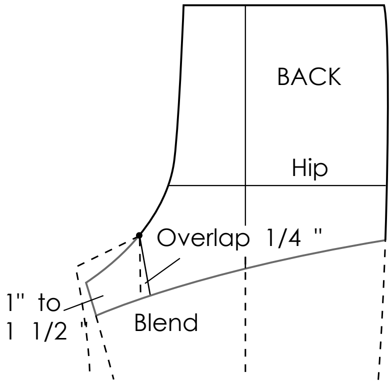
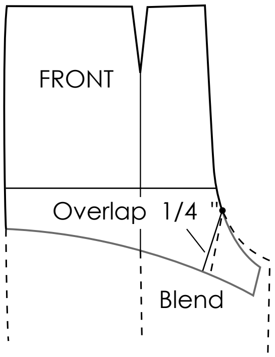


Figure 2



Knickers—Design 3

The knicker pant is a pant derivative and can be drafted from the trouser or slack pant for sizes 3 to 6X and 7 to 14, for boys or girls.

Design Analysis

The knicker pant is generally plotted just below the knee. The fullness is gathered into a band and is buttoned for fit control.

Waist Band Options

To decide the type of waist band best suited to the design, see Waist Options section earlier in this chapter.

Figures 1, 2

- Trace the front and back pant.
- Plot the pant, using illustration and design as a guide.

Figure 3

- Use the knee bent measurement plus an extension (3/4 to 1 inch) to develop the knicker band. The width of the band can vary for different design effects. The average finish is 1 inch.
- Complete the pattern for a test fit.

Figure 1

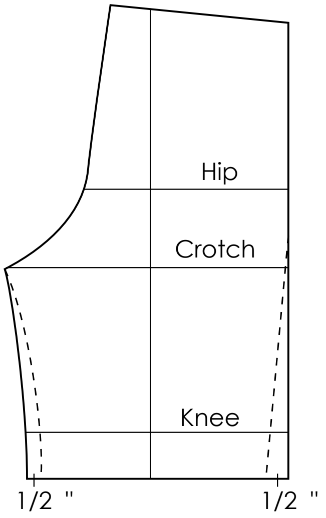


Figure 2

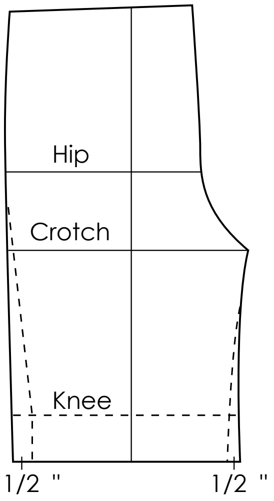
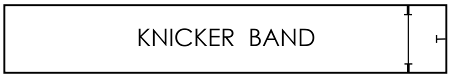


Figure 3



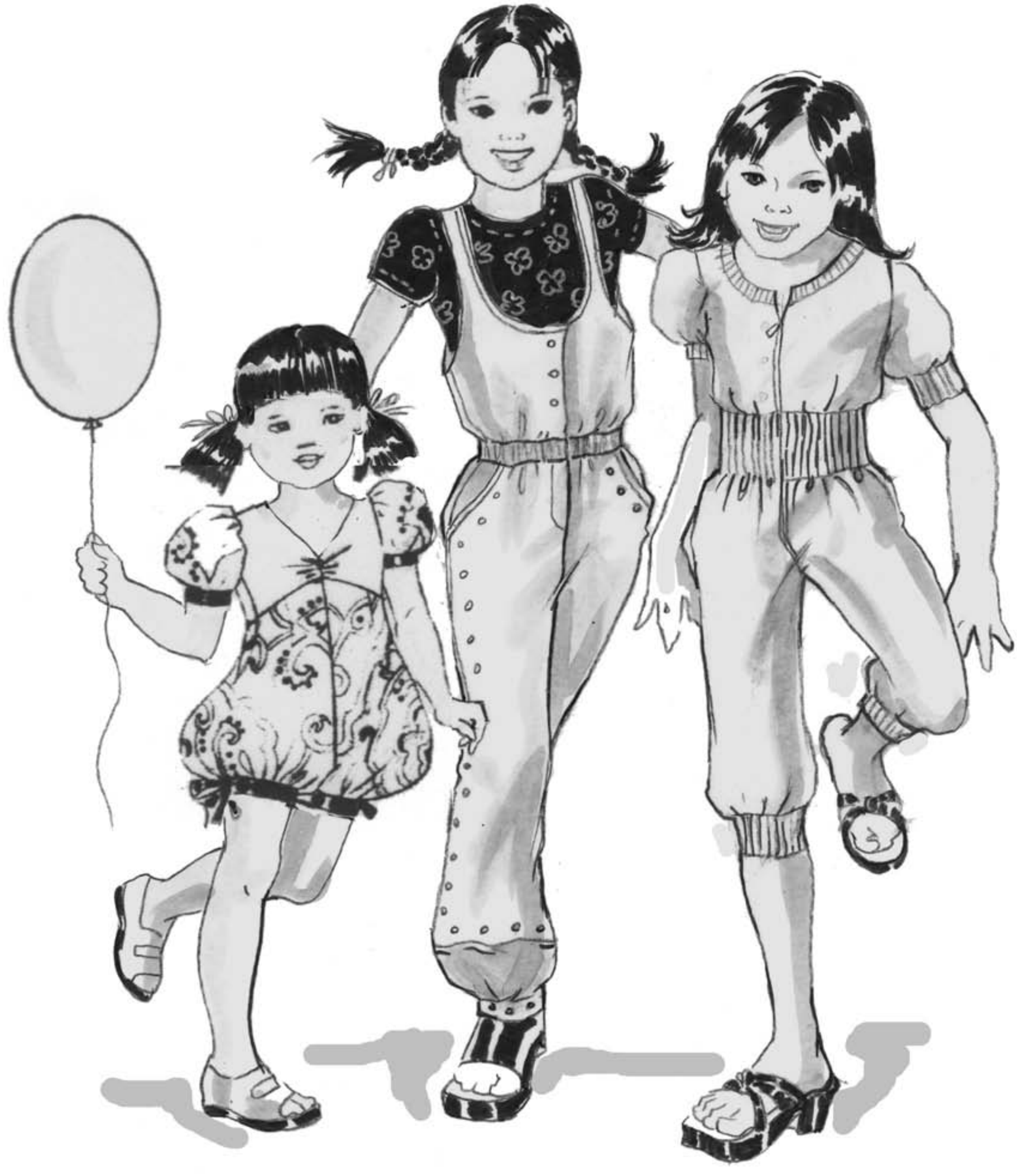
Equal to knee, plus 1 "

JUMPSUIT FOUNDATION

The front and back basic bodice is combined with the pant foundation to develop the jumpsuit pattern. The trouser, slack, or jean can be used for the draft. However, if the jean is used as a base for a jumpsuit, the jumpsuit must be cut in a stretch fabric for comfort. The jumpsuit can be developed all-in-one with the bodice; it can be developed with the front in-one with the bodice and the back with a waistline seam connecting the bodice with the back pant; or a top (bodice or any other top) can be stitched to the waistline of the front and back pant.

Elastic or a drawstring can be used to hold the garment to the waist. At times it is fashionable not to girdle the waistline. The draft allows for blousing along the back and side waist of the front jumpsuit. More blousing can be added for special design effects, and the jumpsuit can be drafted oversized. The pant length can also be varied. Several design ideas are given to show the versatility of the jumpsuit foundation.

The basic sleeve, shirt sleeve, or any other sleeve that fits the armhole can be used with the jumpsuit foundation. The armhole can be lowered for a more casual fit.



Jumpsuit Draft

Figure 1

- Trace the front bodice.
- Place the front pant on the draft, matching center front bodice. (If using the slack or jean foundation, the front will overlap at center line of bodice by 1/4 inch.)
- Trace the pant.

  Important: The grainline of the pant, when extended through the bodice, must be parallel with the bodice center line.
- Draw a connecting line from the armhole to hipline of the side pant.

Figure 2

- Trace the back bodice.
- Place the pant on the draft so that the space of the back at the side is equal to the front side waist.
- Trace the pant so the grainline, when extended, is parallel to the center line of the back.
- Draw the sideline and center line of the back. Complete the pattern for a test fit.
- Trace the basic sleeve.

Jumpsuit with Blousing

Figures 3, 4

- Add space between shoulders of the front and back patterns.

Oversized Jumpsuit

Figures 5, 6

- Add space between the shoulder lines of the front and back patterns, and lower the armhole.
- To modify the sleeve for Figures 5 and 6, lower the bicep by equal amounts.

Figure 1

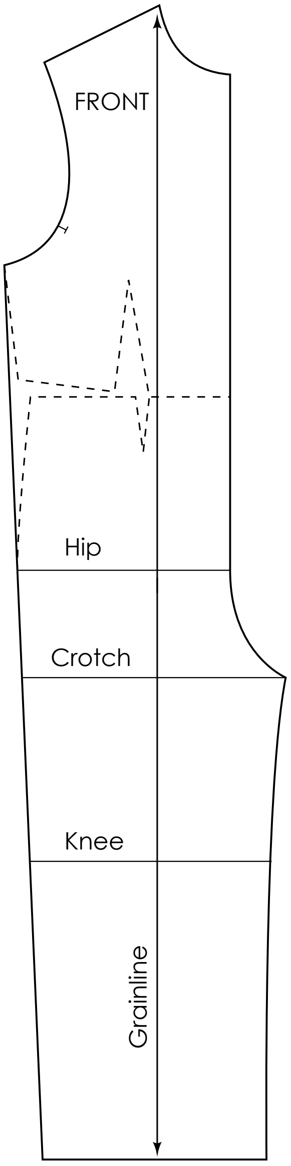

FRONT
Hip
Crotch
Knee
Grainline

Figure 2

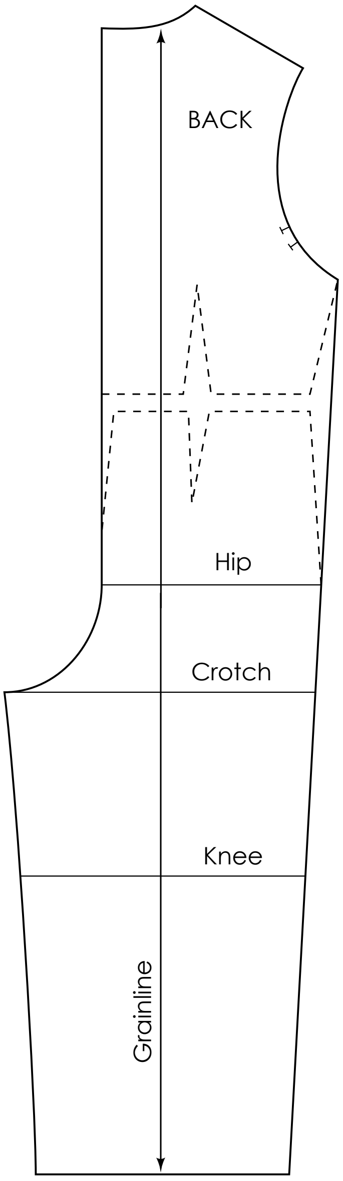

BACK
Hip
Crotch
Knee
Grainline

Figure 3 Figure 4

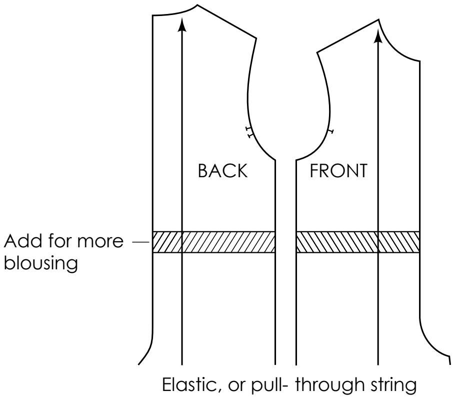
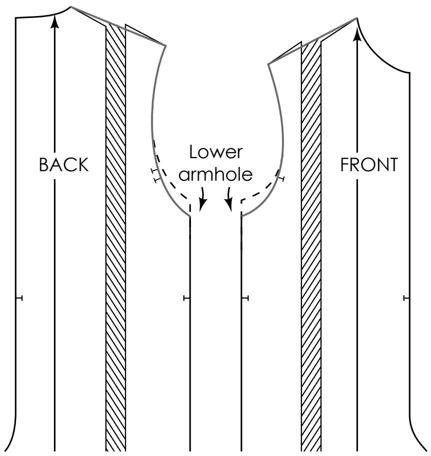
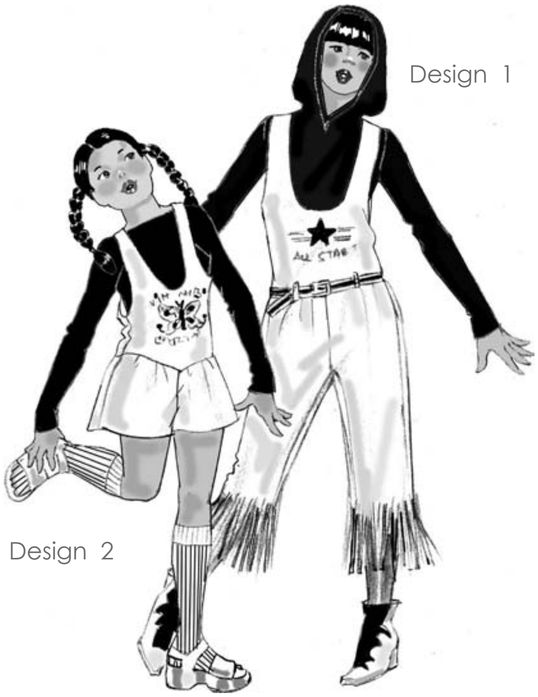

BACK
FRONT
Add for more blousing
Elastic, or pull- through string

Figure 5 Figure 6


BACK
Lower armhole
FRONT

Tank-Top Jumpsuit

The tank-top jumpsuit is based on the trouser jumpsuit foundation and can be drafted for sizes 3 to 6X and 7 to 14.


Design 1
Design 2

Tank Draft

Figures 1, 2

- Trace the front and back trouser jumpsuit (see previous page for the trouser jumpsuit draft).
- Use the illustration and design as a guide for plotting the pattern. Design 1 is illustrated.
- Cut and separate the patterns.
- Complete the pattern for a test fit.

Figure 1

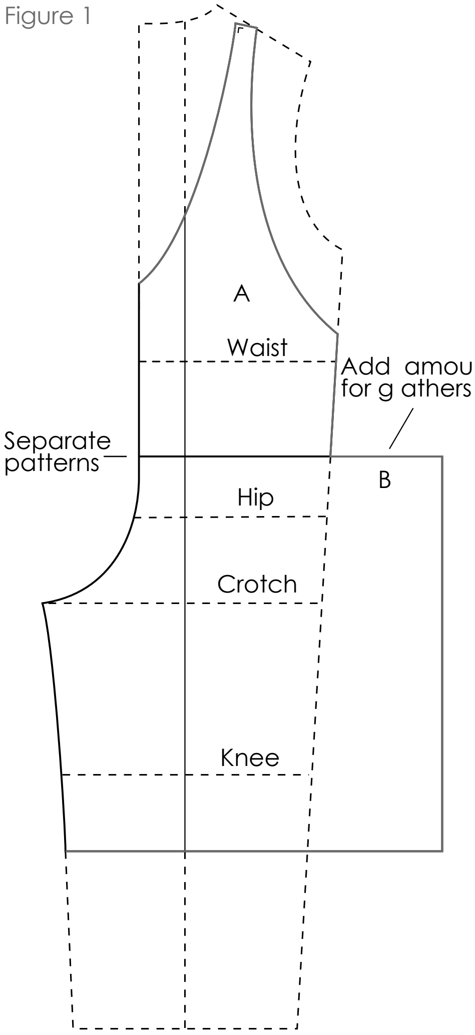
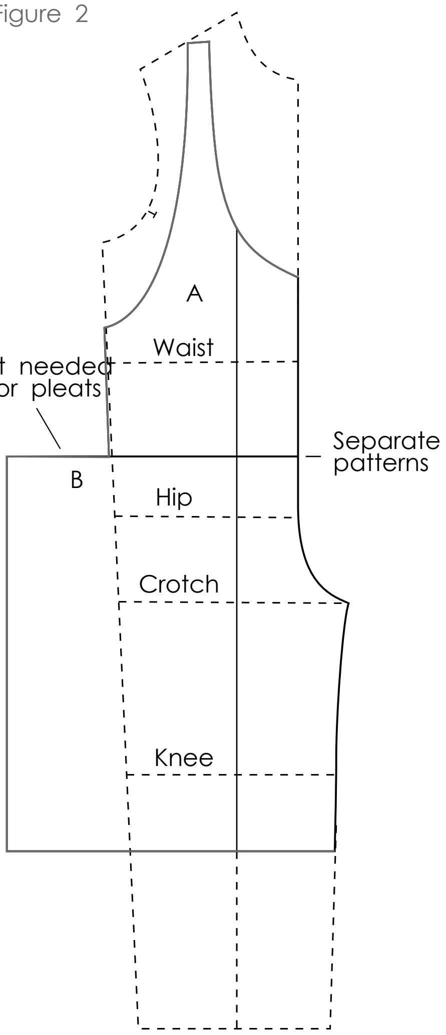

A
Waist
Separate patterns
B
Hip
Crotch
Knee
Add amount needed for gathers or pleats

Figure 2


A
Waist
Separate patterns
B
Hip
Crotch
Knee

Bib Overall

The bib overall is based on the trouser jumpsuit (see two pages back). The design is suitable for sizes 3 to 6X and 7 to 14, for boys or girls.

Design Analysis

The bib overall has a utility pocket on the front of the bib, side pockets, and a patch pocket on the seat of the pant.

Figures 1a, b, c, d

- Trace front and back jumpsuit patterns.
- Plot the pattern, using the illustration, design, and size of the model as a guide.
- Trace the shoulder strap and join at the shoulder (Figure 1a). Trace the pockets from pant (Figures 1c, d).

Note: Establish the finished length; then add additional length to the pant for roll-up. The legline can be tapered, as illustrated.

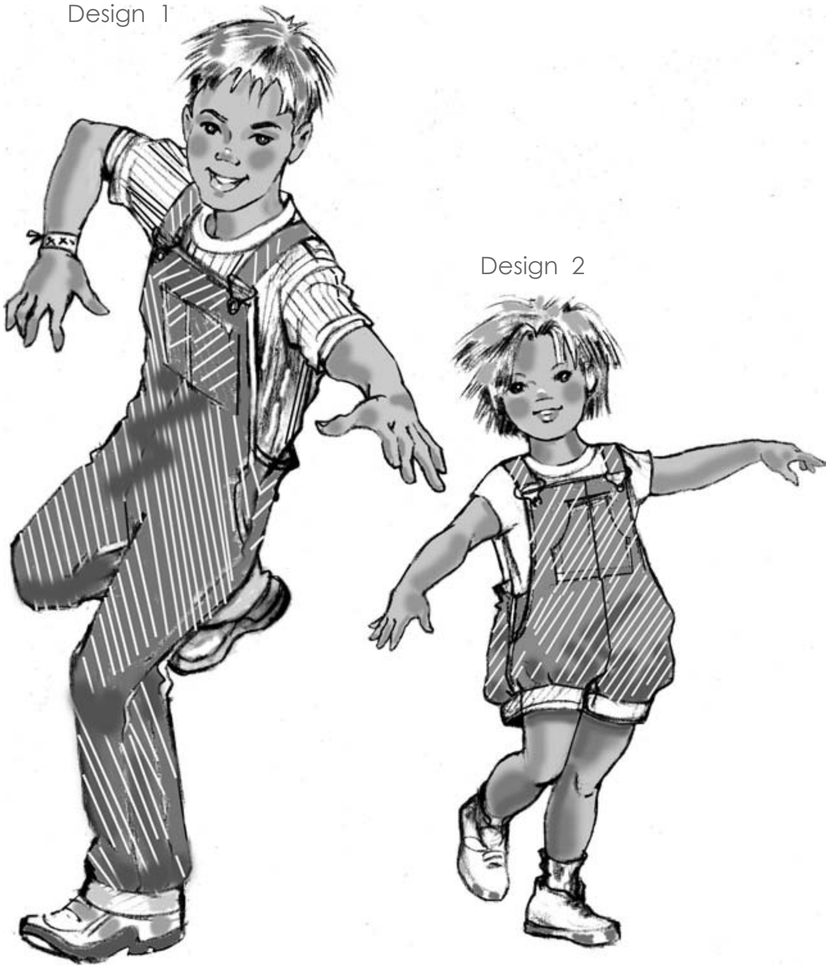

Design 1
Design 2

Figure 1 a

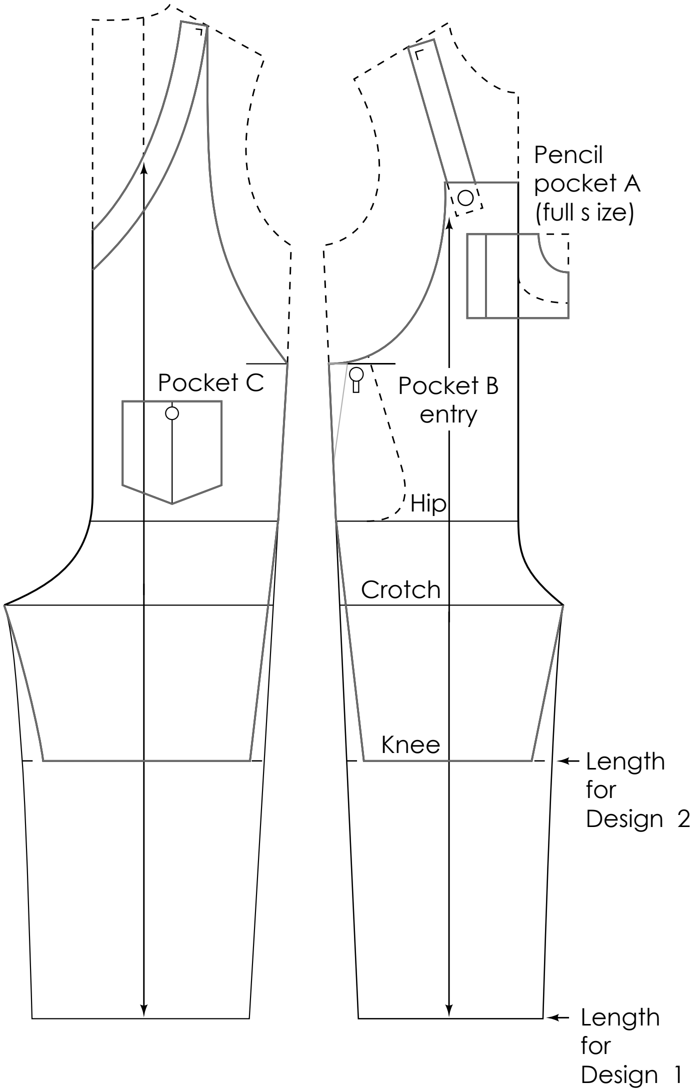

Pencil pocket A (full s ize)
Pocket C
Pocket B entry
Hip
Crotch
Knee
Length for Design 2
Length for Design 1

Figure 1b

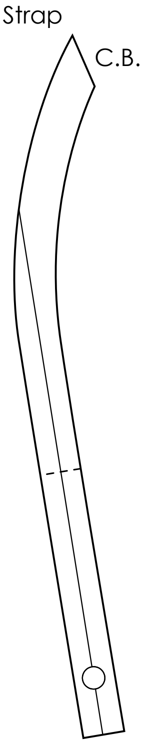


Figure 1c

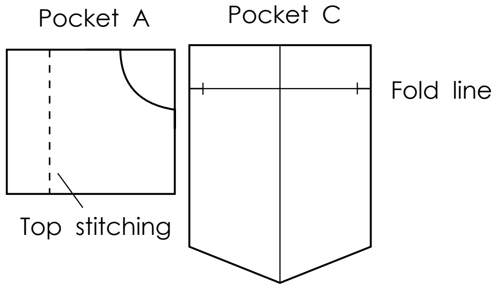
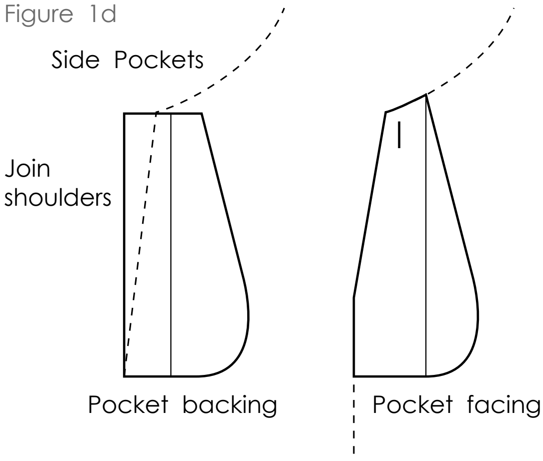

Pocket A
Pocket C
Fold line
Top stitching

Figure 1d


Side Pockets
Join shoulders
Pocket backing
Pocket facing

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

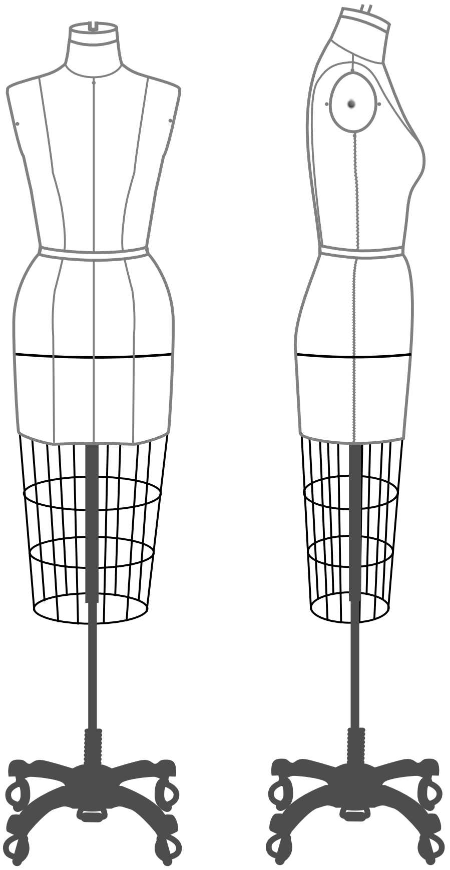
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

*Measuring the Arm

Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

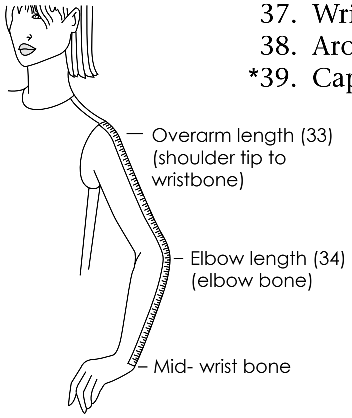
Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

Personal Arm Measurements

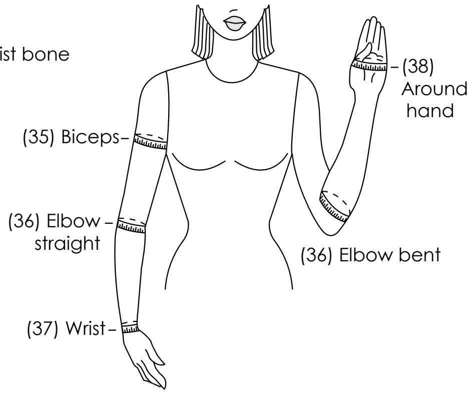
33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____

Length



Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone

Circumference



This page intentionally left blank

Bodysuits, Leotards, Maillots, and Swimwear

From Chapter 37 of *Patternmaking for Fashion Design,* 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

Bodysuits, Leotards, Maillots, and Swimwear

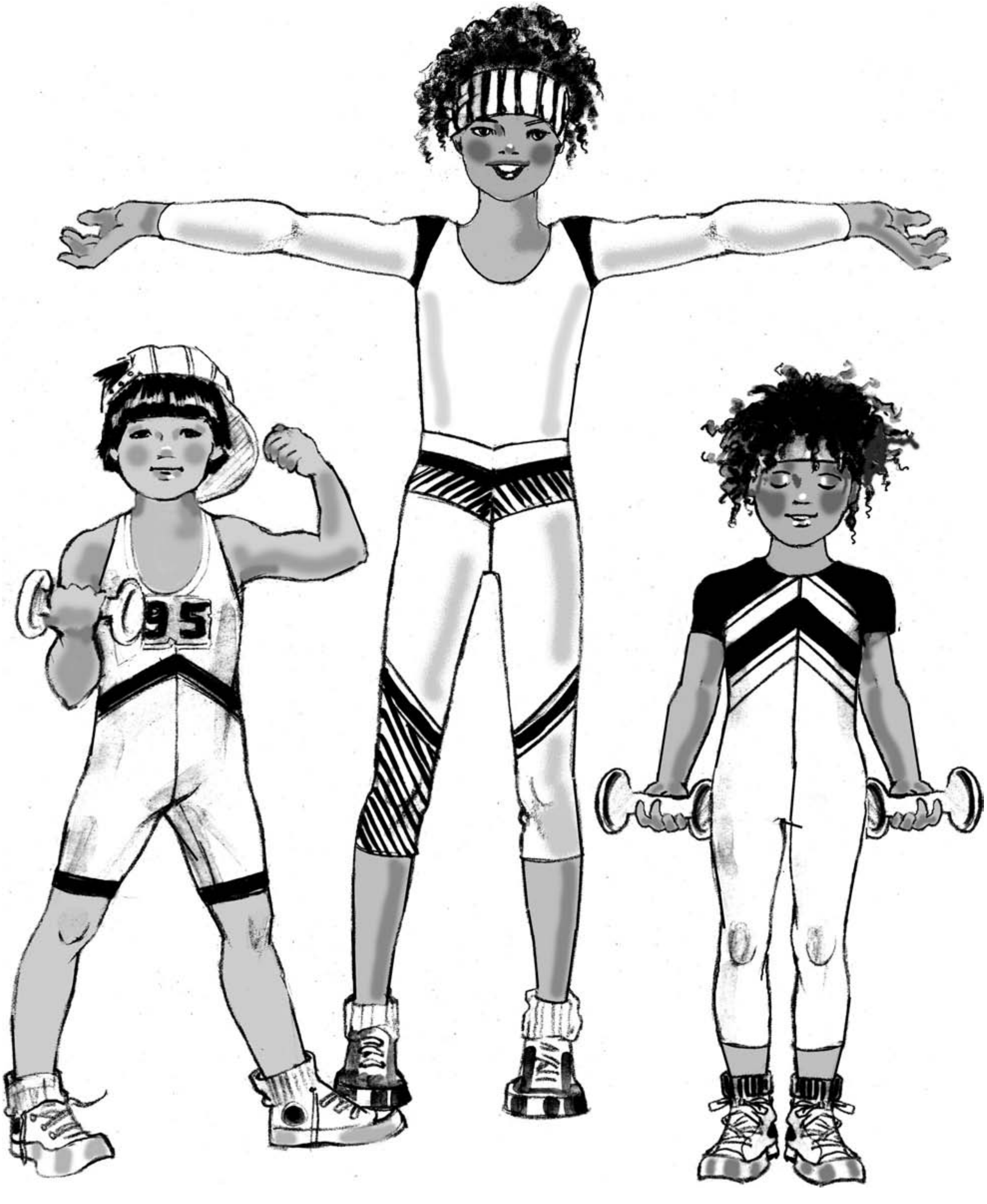
BODYSUIT
    Tank-Top Bodysuit Draft
BODYSUIT WITH SLEEVES
    Bodysuit Draft
    Lycra Knit Sleeve
TIGHTS WITH TOP
    Top and Bottom Patterns
    Tights
TANK-TOP LEOTARD
    Leotard Draft
LEOTARD WITH SLEEVE
MAILLOT FOUNDATION
    Maillot Draft
    Bikini Draft

BODYSUIT

The bodysuit is an activewear garment cut in a two-way stretch Lycra fabric for comfort and maximum body movement. A seam allowance of 3/8 inch (overlock) is included in the draft.

The draft is based on the dartless pattern. Two bodysuit drafts are illustrated: the sleeveless (tank-top) bodysuit and the bodysuit with sleeves.

The maximum stretch of the knit fabric runs through the length of the garment. The front and back bodysuit are drafted together and separated at the completion of the draft.



Measurements Needed

- (14) Waist arc front ________.
- (7) Side length ________.
- (15) Hip arc back ________.
- (27) Crotch depth ________.
- (18) Waist to ankle (pant length) ________.
- (21) Knee plus 3/4 inch ________.
- (17) Waist to knee ________.
- (23) Ankle plus 3/4 inch ________.

Tank-Top Bodysuit Draft

Seam allowance is included.
If milliskin knit is used, subtract 1 inch from measurements where asterisk [*] is marked.

Figure 1 Front Bodysuit

- Trace front pattern (broken lines).

Label neck A. Raise waist 1/2 inch. Label B.

A–C = one-third of A–B.
*B–D = waist arc front (14) less 1/2 inch, squared from B.
D–E = one-half of side length squared up from D (7). Draw the armhole and neckline, as illustrated.
*B–F = crotch depth (27) less 1/2 inch. Mark.
B–G = one-half of B–F. Mark.
B–H = one-half of B–D. Mark.
Square up and down through pattern from H.
H–K = pant length less 1 inch (18). Mark.
*G–I = hip arc less 1/2 inch (back) (15).
Squared from G.
F–J = one-fourth of G–I, plus 1/2 inch.
Line extended from F.
K–M = knee level plus 1/2 inch. Mark.

- *Legline:* Square out one-fourth of knee and ankle measurements from each side of center line. Draw legline from ankle to knee and from knee blending to hipline. Draw crotch curve from J, blending with inseam.

Figure 2 Back Bodysuit

- Cut pattern from paper.
- Trace pattern, for back pattern.
- The back strap slants toward the neckline.
- Draw the back neckline.
- Complete pattern for a test fit.

Note: Modify the neckline and armhole to vary the design.

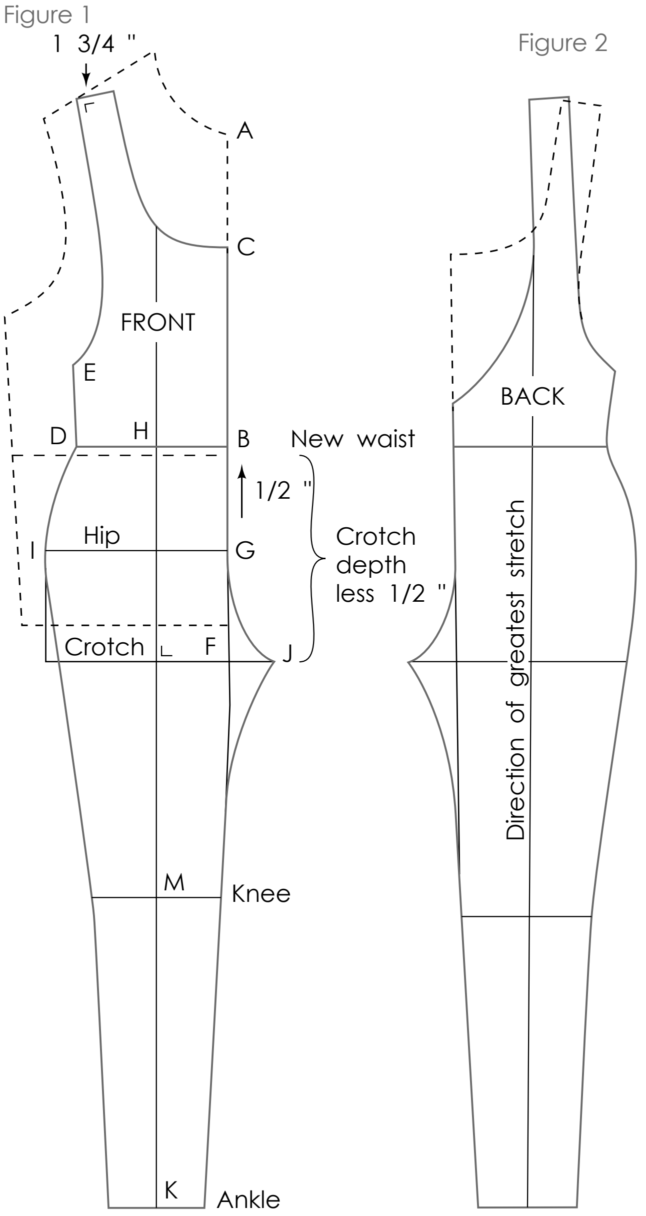


Figure 1

Figure 2

Stitching Guide

- Overlock seams together, except for a 5-inch opening at the center back for entry to test fit.
- Use this pattern for all designs cut in knit having the same stretch factor.

Notching Guide (Two Types of Notching Used for Knits)

1. Notch to a depth of 1/8 inch.
2. Cut pyramid shapes out from the seam edge—1/8 inch wide and 1/8 inch high (Δ).

BODYSUIT WITH SLEEVES

The armhole of the dartless pattern is modified for a sleeve. Measurements needed:

Sleeve length (28) _______________.
Cap height (31) _______________.
Wrist (30) _______________.

Bodysuit Draft

If milliskin knit is used, subtract 1 inch from measurement where asterisk [*] is marked.

Figures 1, 2

- Trace the front pattern. Label the neck A. Raise the waist 1/2 inch and label B.

A–C = one-third of A–B. Mark.
*B–D = waist arc front (14) less 1/2 inch.
Squared from B.
D–E = side length is squared up from D, 1/2 inch past armhole level, and squared out 1/2 inch.
Draw the side seam with a slight inward curve.
Draw the armhole curve parallel to the original armhole.
Draw the neckline as illustrated or modify the shape as desired.

Armhole Measurement

- Measure front armhole. Record for use in drafting the sleeve _______________.

Continue with draft on previous page, Figure 1, starting with B–F instructions.

Figure 1

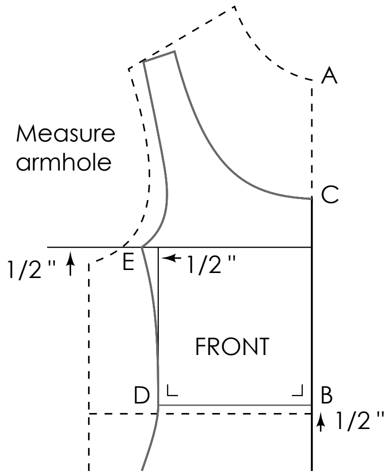
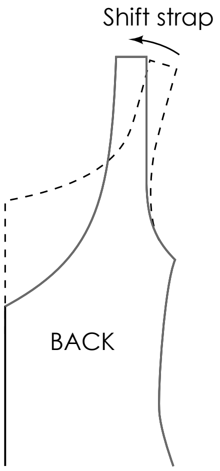


Figure 2

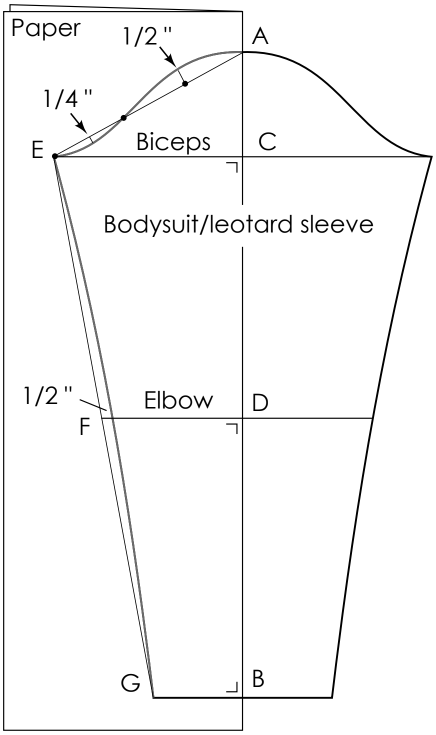


Lycra Knit Sleeve

The sleeve draft is for use with Lycra stretch knit only.

Figure 3
*A–B = sleeve length (28) less 1/2 inch. Fold paper.
A–C = The cap height less 1 inch. Square a line out from C (biceps level).
B–D = one-half of B–C (elbow level).
A–E = front armhole plus 1/8 inch.
Line touches biceps level.
Divide the line into thirds (dot mark).
Draw capline curve, using measurements given.
B–G = one-half of wrist entry measurement (30) plus 3/4 inch. Connect G to E.
Draw underseam, as illustrated.
Cut pattern from paper and test fit with bodysuit or leotard.
Greatest stretch goes around the arm.

Figure 3



TIGHTS WITH TOP

To develop tights, the bodysuit pant is traced to above waistline (allow enough for snap-back from stretching and for elastic casing (approximately 1 1/2 inches); see Figure 3 example). Elastic should measure waist, less 1 1/2 inches, which allows for a 1/2-inch stitched overlap to secure. The bodysuit patterns can be separated through the midriff area for designs with top and bottom patterns.

Figure 1

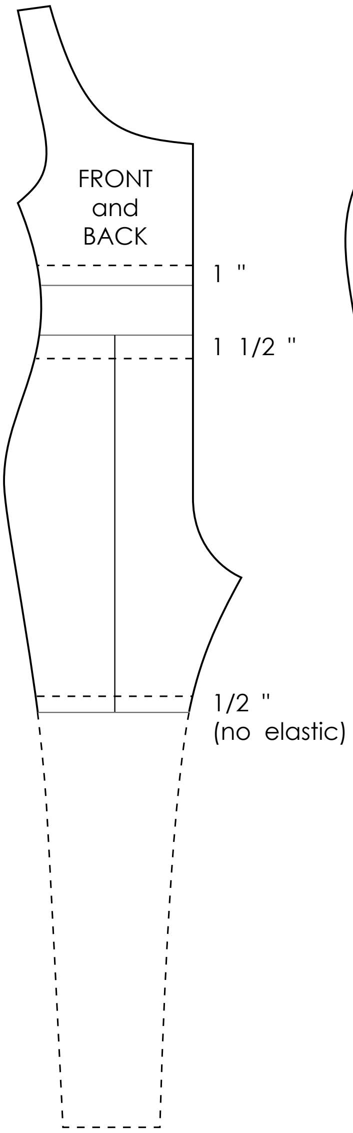


Figure 2

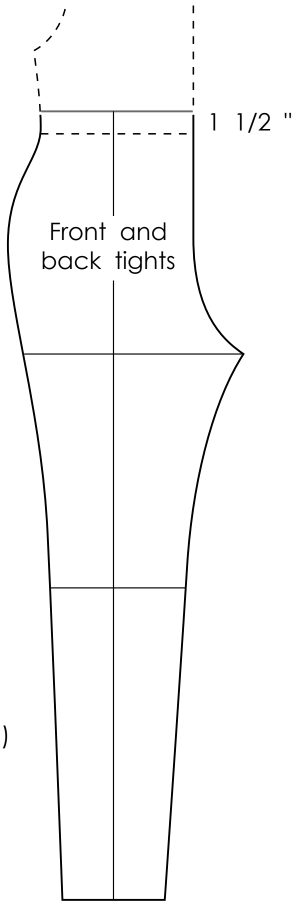
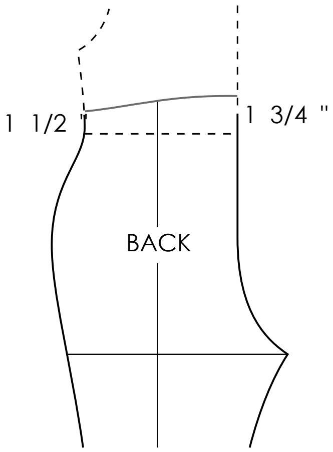
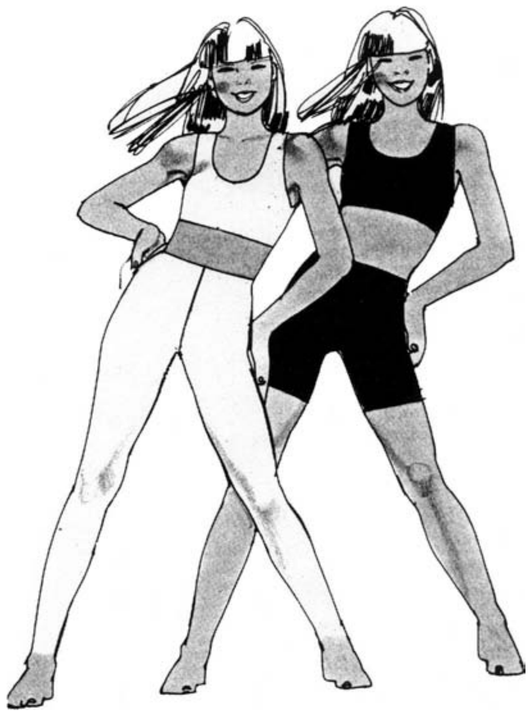


Figure 3





Top and Bottom Patterns

Figure 1

- Trace bodysuit front pattern.
- Plot styleline, using illustration, design, size, and height of model as a guide.

Tights

Figure 2

- Trace the bodysuit pattern and follow illustration. In the fitting, add to back crotch extension if necessary.

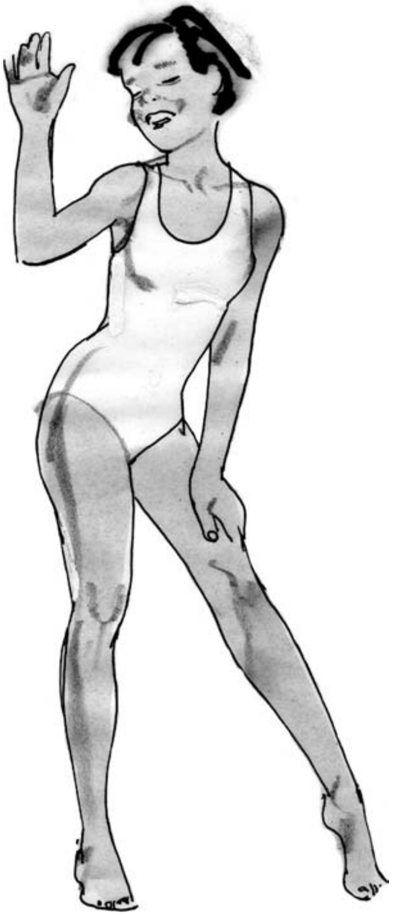
Figure 3

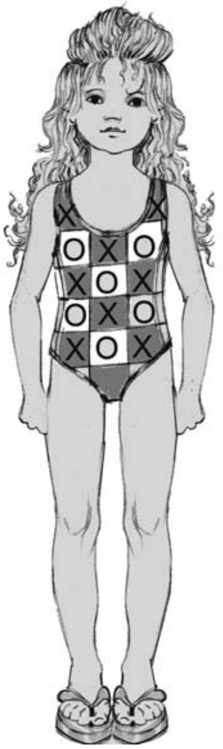
- Back: Example of raised back waistline. Follow illustration.

Elastic Control

Elastic should measure the same as the pattern at the waistlines less 3/4 inch. The measurement includes 1 inch for overlap to stitch the elastic together.

TANK-TOP LEOTARD





The leotard is cut in a two-way Lycra stretch fabric for comfort and maximum movement. Seam allowances of 3/8 inch are included in the draft.

The leotard is based on the dartless pattern. The leotard drafts illustrated are sleeveless and with sleeves.

The maximum stretch of the knit fabric runs through the length of the garment. The front and back leotard are drafted together and separated at the completion on the draft.

Measurements Needed

- (14) Waist arc front _______________.
- (15) Hip arc back _______________.
- (27) Crotch depth _______________.
- (26) Crotch length _______________.

Leotard Draft

If milliskin is used, subtract 1 inch from measurement where asterisk [*] is marked.

Figure 1 Front Leotard

- Trace front dartless pattern. Raise waist 1/2 inch and label A–B.

A–C = one-third of A–B.
*B–D = waist arc (14), less 1/2 inch, squared from B.
D–E = 2 inches, squared from D. Draw shoulder strap and neckline, as illustrated.
*B–F = one-half of crotch length (26), less 3/4 inch.
B–G = one-half of B–F, less 1 inch.
*G–H = hip arc (15), less 1/2 inch, squared from G.
F–I = 1 1/8 inches, squared from F. Square up from I. Label J. Crossmark 2 inches up from I. Label K.

Draw a 1 1/2-inch line (or less) from J as a guide. Draw front legline from H to K touching angle line. Cut from paper.

Figure 2 Back Leotard

- Trace the front leotard pattern.
- Draw a line from L to M, 3/8 inch in from each end of the legline.
- Draw the back legline, as illustrated.
- Shift the shoulder strap, as illustrated (secures strap to shoulder).

Figure 1

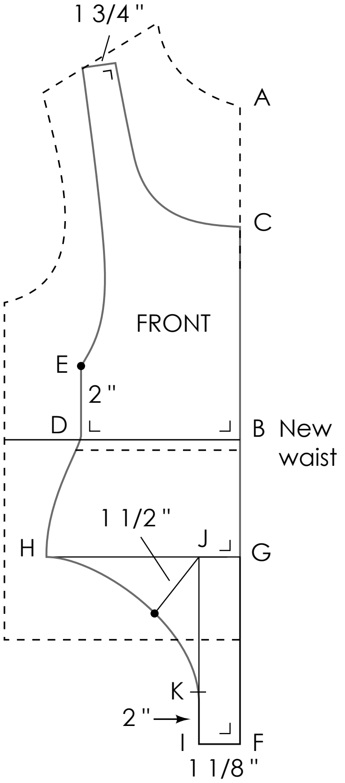
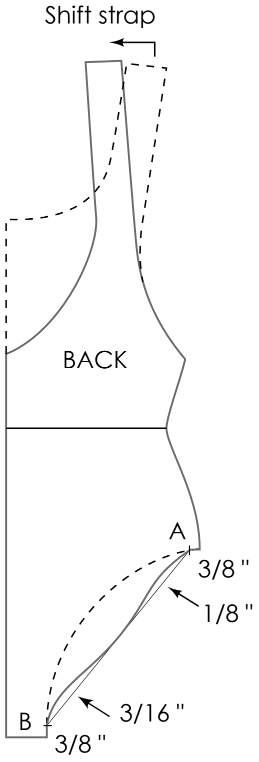


Figure 2



LEOTARD WITH SLEEVE

If milliskin is used, subtract 1 inch from measurement where asterisk [*] is marked.

Figures 1, 2

- Trace front pattern. Raise the waist 1/2 inch and label A–B.

A–C = one-third of A–B. Mark.

*B–D = waist arc (14) front, less 1/2 inch, squared from B.

D–E = side length is squared up from D, 1/2 inch past armhole level, and squared out 1/2 inch.

Draw the side seam with a slight inward curve.

Draw the armhole curve parallel to the original armhole.

Draw the neckline as illustrated, or modify the shape as desired.

Armhole

- Measure armhole and record for use in developing the sleeve _______________ . See Bodysuit with Sleeves section earlier in this chapter for sleeve draft (long, or to preferred length).

Continue with draft on previous page, Figure 1, starting with B–F instructions.

Figure 1

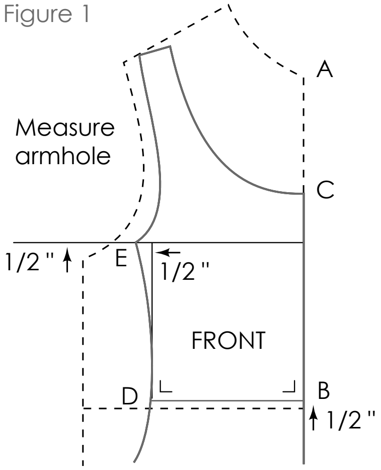

A
Measure armhole
C
1/2"
E
1/2"
FRONT
D
B
1/2"

Figure 2

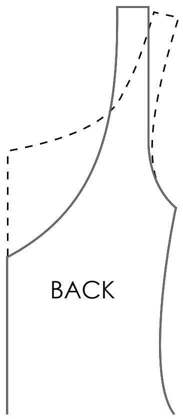
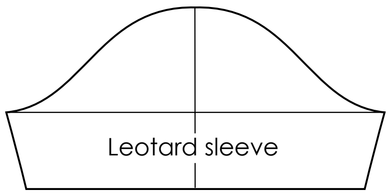
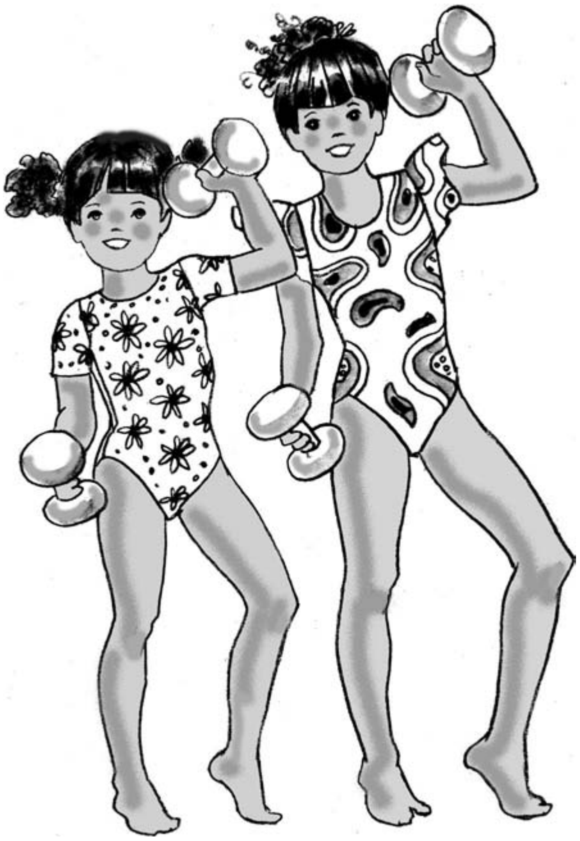


Figure 3


Leotard sleeve



Figures 4, 5
The completed patterns are illustrated.

Figure 4

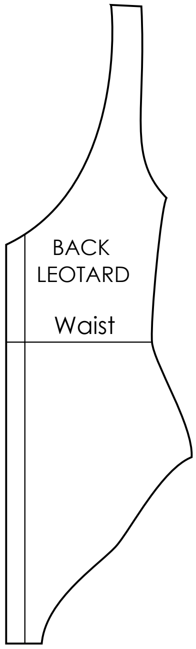
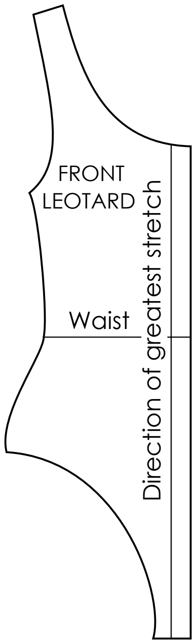

BACK LEOTARD
Waist

Figure 5


FRONT LEOTARD
Waist
Direction of greatest stretch

MAILLOT FOUNDATION

The maillot swimsuit is based on the leotard pattern with basic armhole (see previous page). Seam allowances of 3/8 inch are included in the draft. The maximum stretch goes around the figure. The maillot foundation pattern is the base for the development of the bikini and bra tops.

Maillot Draft

Figures 1, 2

- Trace the front and back leotard. Modify the pattern as illustrated. Two leglines are shown for design variations.
- Extend the center line if a higher neckline is desired.
- The waistline is marked using the symbol Δ rather than the notch.
- Cut and test fit.

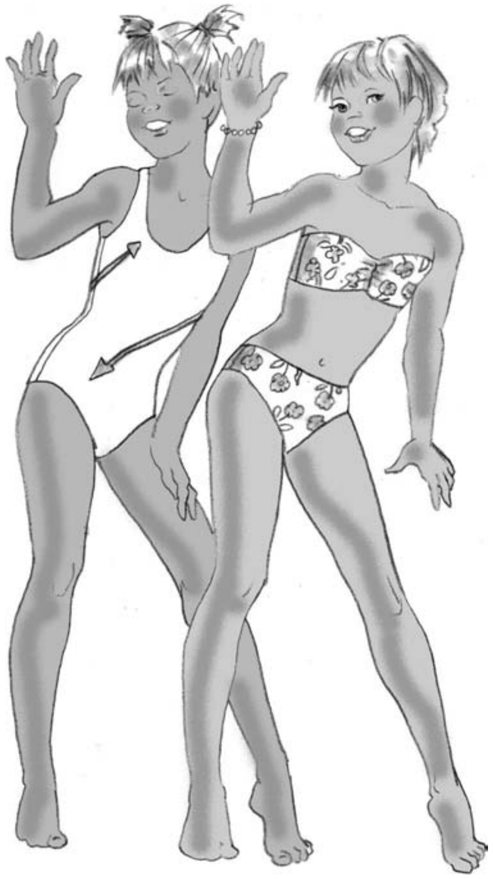
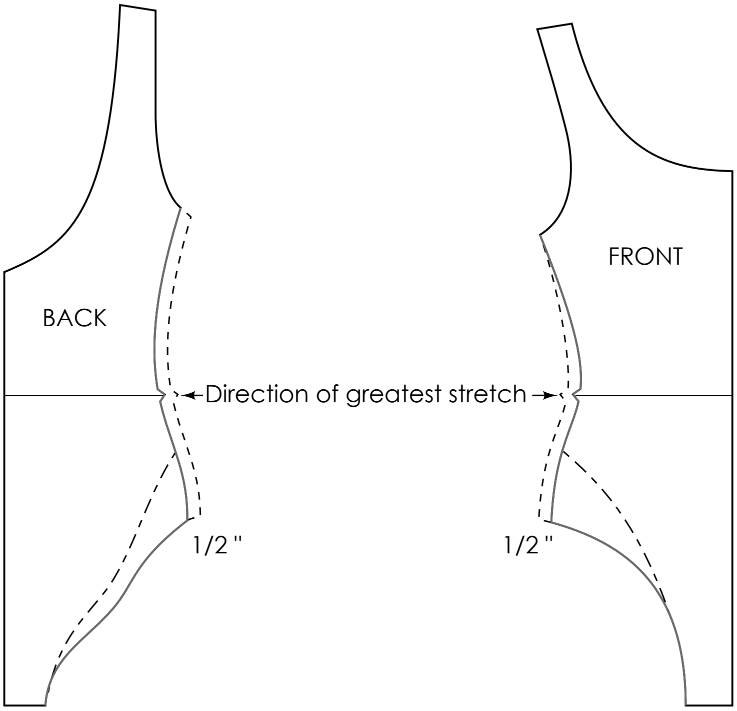


Figure 1 Figure 2



Bikini Draft

Figures 1a, b, c

- Trace front and back maillot patterns and plot bikini, bra top, and crotch lining using illustration as a guide (a, b, c).
- Allow an addition of 3/4 inch above the bikini line for the snap-back from stretching and for elastic attachment. For legline variation, see Figure 4. Direction lines are horizontal for maximum stretch.

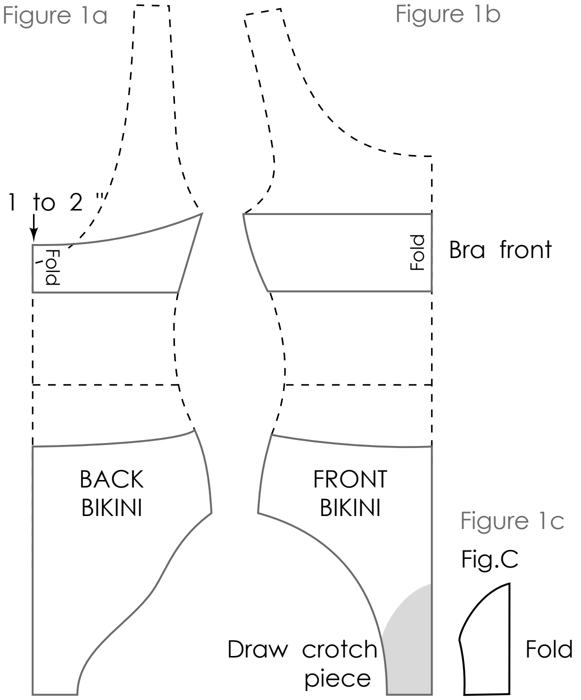


Figure 1a

Figure 1b

Figure 1c

1 to 2 "
Fold
Fold
Bra front
BACK BIKINI
FRONT BIKINI
Draw crotch piece
Fig.C
Fold

Figures 2d, e

- Cut front and back bra from paper, after adding 3/8 inch for attaching elastic.

Figure 2d

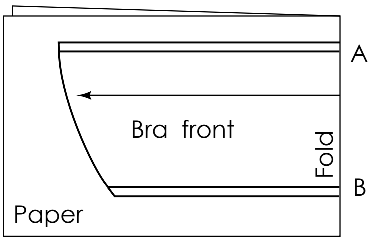

A
Bra front
Fold
B
Paper

Figure 2e

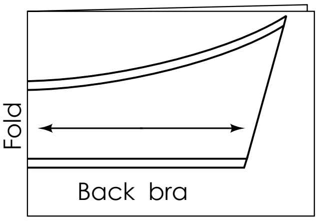

Fold
Back bra

Figure 3 Bow

- Tie. Draw tie on fold 1-3/4 × 6″ (or longer). Tack center of tie and to bra underneath.

Figure 3

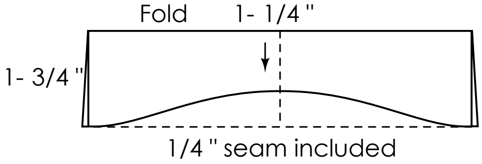

Fold
1- 1/4 "
1- 3/4 "
1/4 " seam included

Figure 4 Center fold bikini

- Place front and back bikini on fold. If preferred, adjust legline and trace. Add 3/8″ seams for elastic. Cut and test fit.*

Figure 4

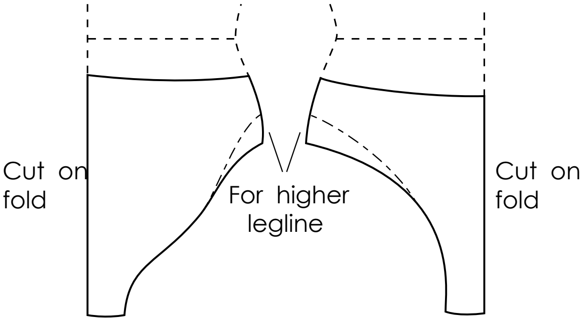
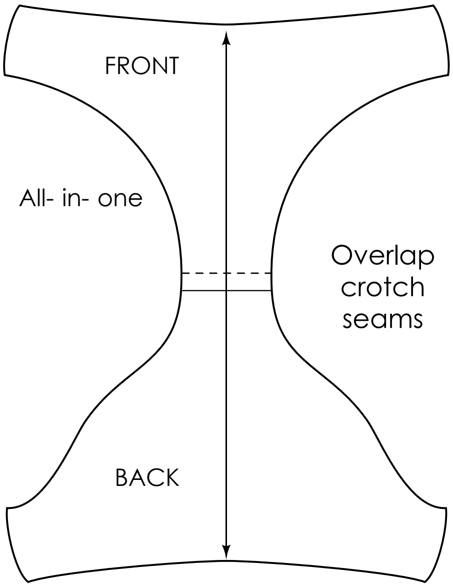

Cut on fold
For higher legline
Cut on fold

Figure 5 All-in-One bikini

- Place front bikini on fold and trace. Place back bikini on fold matching stitch lines at crotch levels. Trace. Cut and test fit.

Figure 5


FRONT
All- in- one
Overlap crotch seams
BACK

FORM MEASUREMENT CHART

Circumference Measurements

1. Bust: _____, plus 2″ ease _____
2. Waist: _____, plus 1″ ease _____
3. Abdomen: _____
4. Hip: _____, plus 2″ ease _____

Upper Torso (Bodice)

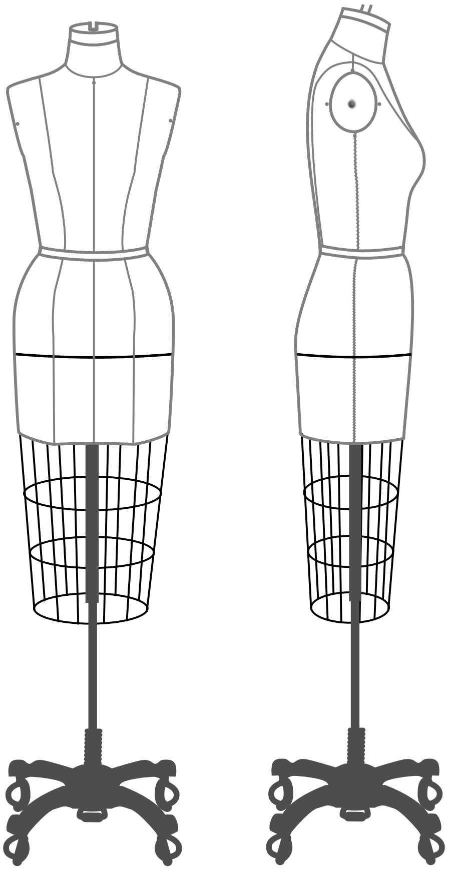
5. Center length: F _____, B _____
6. Full length: F _____, B _____
7. Shoulder slope: F _____, B _____
8. Strap: F _____, B _____
9. Bust depth: _____, radius _____
10. Bust span: _____
11. Side length: _____
12. Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____, B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____, B _____
20. Dart placement: F _____, B _____

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____, B _____
23. Hip arc: F _____, B _____
24. Crotch depth: _____
25. Hip depth: C.F. _____ C.B. _____
26. Side hip depth: _____
27. Waist to ankle: _____
    Waist to knee: _____
    Waist to floor: _____
28. Crotch length: _____
    Vertical trunk: _____
29. Upper thigh: _____
    Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____
    Foot entry: _____

Form

Form make and type _____
Size _____ Year _____



Special Information

Set form to desired height and measure the following:

C.F. waist to floor _____
C.B. waist to floor _____
C.B. neck to floor _____

PERSONAL MEASUREMENT CHART

Circumference Measurements

1. Bust: _____ 3. Abdomen: _____
2. Waist: _____ 4. Hip: _____

Upper Torso (Bodice)

5. Center length: F _____ B _____
6. Full length: F _____ B _____
7. Shoulder slope: F/R _____ F/L _____
B/L _____ B/L _____
8. Strap: F/R _____ F/L _____
9. Bust depth: F _____ Radius _____
10. Bust span: _____
11. Side length: F/R _____ F/L _____
12. *Back neck: _____
13. Shoulder length: _____
14. Across shoulder: F _____ B _____
15. Across chest: _____
16. Across back: _____
17. Bust arc: _____
18. Back arc: _____
19. Waist arc: F _____ B _____
20. Dart placement: F _____ B _____
21. Standard dart intake:
Front = 1" (2 darts 1/2 to 5/8")
Back = 2" (2 darts 1 to 1 1/4")

Lower Torso (Skirt/Pant)

22. Abdomen arc: F _____ B _____
23. Hip arc: F _____ B _____
24. Crotch depth: _____
25. Hip depth: CF _____ CB _____
26. Side hip depth: R/S _____ L/S _____
27. Waist to knee _____ ankle _____ floor _____
28. Crotch length _____ Vertical trunk: _____
29. Upper thigh: _____ Mid-thigh: _____
30. Knee: _____
31. Calf: _____
32. Ankle: _____

*Measuring the Arm

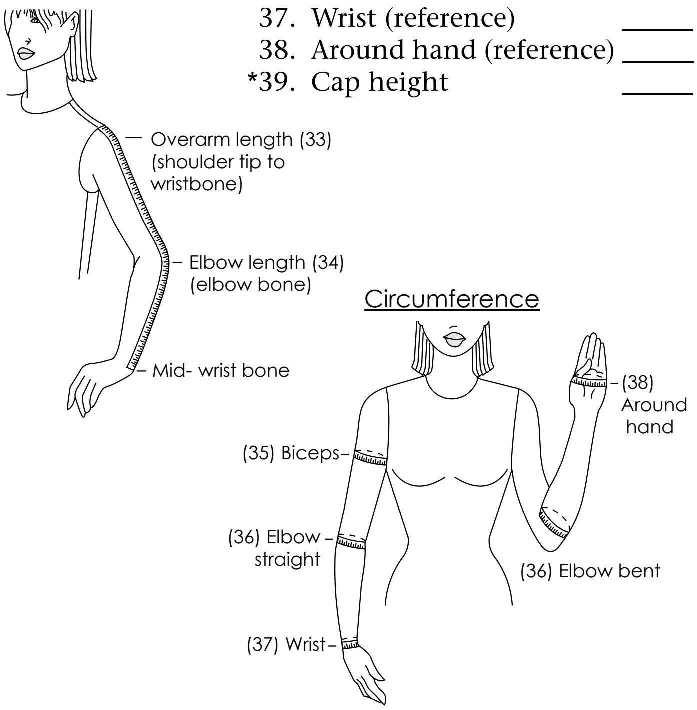
Use your measurements (shown by asterisks) for the draft of the basic sleeve. Read the instructions. Use the *cap height* from the sleeve measurement chart, or use the formula to determine cap height.

Personal Figure Variations

A. Head height relationship:
Bust _____ Waist _____
Crotch _____ Knee _____
B. Bust/back/chest relationship:
Bust _____ Back _____
C. Hip types: _____
D. Arm types: _____
E. Abdominal/thigh relationship:
Abdominal _____ Thigh _____
F. Shoulder type _____
G. Shoulder/hip relationship:
Shoulder _____ Hip _____
H. Leg types _____
I. Leg types _____
J. Figure stance: _____
K. Asymmetric figure. Record high side, right and left.
Shoulder: _____ Hip: _____
L. Tilting waistline. Record high and low.
Front: _____ Back: _____
M. Bust/waist = _____
Waist/hip = _____
Bust/hip = _____
N. Other variations: _____

Personal Arm Measurements

33. Overarm length:* _____
34. Elbow length:* _____
35. Biceps plus 2":* _____
36. Elbow bent (reference) _____
37. Wrist (reference) _____
38. Around hand (reference) _____
*39. Cap height _____


Length
Overarm length (33) (shoulder tip to wristbone)
Elbow length (34) (elbow bone)
Mid- wrist bone
Circumference
(38) Around hand
(35) Biceps
(36) Elbow straight
(36) Elbow bent
(37) Wrist

Bibliographic Credits

Sewing for the Apparel Industry
Claire Shaeffer
Prentice Hall, Inc.
Upper Saddle River, New Jersey 07458
ISBN 0-321-06284-1, 2001
1-800-526-0485

Claire Shaeffer's Fabric Sewing Guide, Second Edition
Claire Schaeffer
Krause Publications Inc.,
Iola, WI
ISBN 0-89689-536-X, 2008
1-800-258-0929

Inside Fashion Design, Fifth Edition
Sharon Lee Tate and Mona S. Edwards
Prentice Hall, Inc.
Upper Saddle River, New Jersey 07458
ISBN 0-13-045366-2
1-800-526-0485

New Complete Guide to Sewing (Reader's Digest)
Editors of Reader's Digest
Montreal—Pleasantville, New York
ISBN: 0-0762104201, 2002
1-800-234-9000

Classic Tailoring Techniques: A Construction Guide for Women's Wear
Roberto Cabrera and Patricia Flaherty Meyers
Fairchild Books, New York
ISBN: 1-87005-435-X, 1984
1-800-932-4724

Fundamentals of Men's Fashion Design: A Guide to Casual Clothes
Edmund B. Roberts and Gary Onishenko
Fairchild Books, New York
ISBN: 1-87005-514-3, 1985
1-800-932-4724

Fundamentals of Men's Fashion Design: A Guide to Tailored Clothes
Masaaki Kawashima
Fairchild Books, New York
ISBN: 1-87005-105-9, 1980
1-800-932-4724

From the Bibliographic Credits of *Patternmaking for Fashion Design*, 5/e. Helen Joseph-Armstrong.
Copyright © 2010 by Pearson Education. Published by Prentice Hall. All rights reserved.

This page intentionally left blank

Index

Page references followed by "f" indicate illustrated figures or photographs; followed by "t" indicates a table.

A

Accordion pleats, 320
Activewear, 407, 449, 725, 727, 745-765, 795, 903
Actual, 85, 181, 617
Add-on, 160
Aesthetics, 18, 805
A-line skirt
  slash, 285-286
All-in-one facing, 422, 424
Alpaca, 18
American Society for Testing and Materials (ASTM), 29
Apparel, 1-2, 13, 18, 29, 539, 807, 913
Apparel production
  patternmaking, 13
Armhole
  depth, 35-36, 38, 186, 190-191, 248, 264, 373, 422-424, 451, 518, 539, 577, 581-582, 603, 645, 747-748, 811-813, 852, 863, 868, 904
  facing, 95, 196, 373, 422-424, 427, 458, 471, 539, 561, 594-596, 612, 653, 844, 853
  princess, 34, 38, 84, 137, 142-144, 191, 384, 404, 412, 454, 458, 539, 561, 563, 812-813, 817-818, 840-841, 863
Armhole dart, 78, 84, 93, 129
Armplate
  measurements, 38-39
Arrow, 9, 86, 569, 576
Assistant designer, 18
Awl, 3-4, 189, 335, 493

B

Back:
  darts, 23, 42, 54, 75, 109, 135-136, 149, 165, 183, 207, 234, 245, 271, 346, 381, 414, 426, 445, 470, 495, 513, 535, 572, 613, 615, 623, 639, 655, 693, 721, 731, 743, 765, 801, 810, 823, 838, 850, 874, 899, 912
  neck, 22-23, 40-42, 74-75, 108-109, 135-136, 148-149, 164-165, 182-183, 206-207, 233-234, 244-245, 270-271, 345-346, 380-381, 413-414, 425-426, 444-445, 469-470, 494-495, 512-513, 534-535, 571-572, 577, 581, 622-623, 638-639, 654-655, 720-721, 730-731, 742-743, 764-765, 800-801, 809-810, 822-823, 837-838, 849-850, 873-874, 898-899, 911-912
  shoulder slope, 22-23, 40-42, 74-75, 108-109, 135-136, 148-149, 164-165, 182-183, 206-207, 233-234, 244-245, 270-271, 345-346, 380-381, 413-414, 425-426, 444-445, 469-470, 494-495, 512-513, 534-535, 571-572, 581-582, 622-623, 638-639, 654-655, 720-721, 730-731, 742-743, 764-765, 800-801, 809-810, 815-816, 822-823, 837-838, 849-850, 873-874, 898-899, 911-912
  stitch, 615, 906
  torso, 22-23, 40-42, 74-75, 108-109, 135-136, 148-149, 164-165, 182-183, 206-207, 233-234, 244-245, 270-271, 345-346, 380-381, 413-414, 425-426, 444-445, 469-470, 494-495, 512-513, 534-535, 571-572, 622-623, 638-639, 654-655, 720-721, 730-731, 742-743, 764-765, 800-801, 809-810, 822-823, 837-838, 849-850, 873-874, 898-899, 911-912
Balance
  horizontal, 12, 26, 34, 37, 71, 163
  vertical, 12, 26, 372
Banding, 442, 525, 600-601, 610, 644, 727, 739
Base, 6, 54, 80, 87, 100, 138, 200, 213, 224, 232, 238, 279, 358, 406, 449, 456-457, 461, 463, 482, 485, 499, 517, 529, 539, 542, 565, 569, 581, 588, 613, 649, 660, 663-665, 667, 671-672, 693, 697, 712, 759, 769, 782, 806, 828, 840-841, 844, 848, 852, 858, 860, 886, 894, 909
Basic patterns
  basic sleeve, 43, 45, 852
Bateau neckline, 237, 240
Batiste, 482
Batting, 482
Beading, 482
Belgium, 540, 588, 591-592
Bell sleeve, 362, 826, 829
Belts, 330
Better, 29, 591, 806
Bias, 7, 9, 100, 190, 199-201, 213-214, 230-231, 248-251, 253, 255, 257-258, 260-261, 265, 267, 269, 285, 287, 293, 310, 338, 344, 352, 373, 390, 419, 465, 476-477, 497-513, 563, 588, 594, 725, 780, 788, 794
Bias cut, 248, 250, 269
Bias seams, 508
Bias-cut garments, 498-499
Bishop sleeve
  full, 362
Blend, 2, 11, 50-51, 53, 56, 64, 67-68, 95-96, 114, 116, 122-123, 132-133, 139-140, 142-143, 155-159, 169, 176, 195-196, 198, 200, 202-205, 215, 217-220, 222, 225, 229-230, 239, 241, 253, 255, 258, 260, 263, 266, 278-279, 284, 286, 290-292, 297-298, 300, 302, 305, 308, 314, 319-320, 324-325, 327-328, 338, 343, 351, 356, 359-361, 364, 366, 368, 370, 372-373, 376, 378, 386-387, 389-390, 396-398, 401-403, 407-408, 423, 433, 455-457, 460, 462, 464, 466, 476, 478, 482, 501, 505, 523, 533, 541-542, 544, 546, 549-550, 552, 554, 557, 560, 562-565, 567, 582, 584-585, 587, 603, 612, 615-616, 618, 620, 627-628, 630, 633-635, 645, 648, 670, 674-677, 679-680, 683, 685, 697, 699, 701-702, 705, 708, 712, 715-717, 719, 729, 736-737, 740, 748, 751, 753, 757, 762, 778, 787, 789-790, 794, 821, 830, 840, 842, 852-854, 862, 882, 893
Blending, 1, 10-11, 64, 115, 118, 143, 176, 197-198, 200, 202, 213, 241, 251, 284, 286, 288, 295, 312, 316, 351, 367, 376, 391-392, 398, 400-402, 408, 455, 462, 466, 476, 519, 523, 569, 582, 586, 614, 637, 669-670, 675, 677, 705-706, 717, 719, 728, 735, 738, 750-751, 775, 778, 789-790, 793, 806, 844, 846, 862, 882, 893, 904
Blends, 215, 482, 499
Blocking, 751, 846
Blocks, 760
Blouse, 161, 328, 356, 385, 516-521, 532
Blouses, 249, 407, 449, 517, 529, 557
Blouson, 152, 161-163, 391, 454
Bodice
  cowl, 83, 249-250, 252, 254, 256-257, 263, 266, 268, 506
  gathers, 67, 83, 156, 168-169, 197, 249, 263, 267, 350, 356, 382, 404, 408, 754, 831, 848
  halter, 263
  pleats, 83, 117, 120, 169, 249, 266, 382, 408
  twist, 250, 498, 506
Bodysuit, 36, 726, 746-747, 749-755, 763, 852, 902-906, 908
Bow, 128, 910
Box-pleated skirt, 274, 325
Bridge, 35-36, 39, 44, 190
Buckle, 420, 442, 612
Buckram, 615
Bulky fabrics, 214, 550
Business
  licensing, 807
Bust:
  dart, 22-23, 40-42, 74-75, 108-109, 135-136, 148-149, 164-165, 182-183, 206-207, 233-234, 244-245, 270-271, 345-346, 380-381, 413-414, 425-426, 444-445, 469-470, 494-495, 512-513, 534-535, 571-572, 622-623, 638-639, 654-655, 720-721, 730-731, 742-743, 764-765, 800-801, 809-810, 822-823, 837-838, 849-850, 873-874, 898-899, 911-912
  measurement, 22-23, 40-42, 74-75, 108-109, 135-136, 148-149, 164-165, 182-183, 206-207, 233-234, 244-245, 270-271, 345-346, 380-381, 413-414, 425-426, 444-445, 469-470, 494-495, 512-513, 534-535, 571-572, 622-623, 638-639, 654-655, 720-721, 730-731, 742-743, 764-765, 800-801, 809-810, 822-823, 837-838, 849-850, 873-874, 898-899, 911-912
Buttonholes
  extensions, 419
Buttons, 4, 169, 179, 230, 374, 395, 417-427, 430, 434, 555, 587, 599, 627, 694, 753, 807, 889, 891
Buying, 18, 726

C

Canvas, 28, 482, 492-493
Capes
  circular, 332, 341, 627
Carbon, 3
Carbon paper, 3
Care, 660, 776
Chiffon, 249, 291, 335, 499, 509
China silk, 482
Classification, 429, 435, 724, 726-727, 747
Classifications, 138, 210, 212, 350
Closures
  zippers, 807
Clothing
  used, 13, 29, 805, 807
Codes, 573, 590
Collar
  band, 225, 230-231, 826
  convertible, 212-213, 232
  pointed, 211, 224, 429-430
  sailor, 210, 220-222, 228, 559, 826-827
  shirt, 210, 212-213, 226, 521, 528, 573-574, 607, 611, 644, 649, 713, 741, 826-827, 851, 853-854
  stand variations, 224
Collars
  mandarin, 210, 224-226, 229, 232
  Peter Pan, 210, 212, 217-219, 223, 227-228, 232, 826-827
  shawl, 538, 557, 559
Collections, 807
Combination, 7, 117, 192, 224, 358, 382, 390, 449, 591, 712, 878
Comfort, 61, 714, 727, 798, 805, 894, 903, 907
Compare, 21, 30, 32, 63, 81, 107, 128, 153, 217, 649, 653, 661, 676, 737
Comparison, 30, 97, 107
Computer-aided design (CAD), 13
Computers
  apparel production, 13
Construction, 306, 330-331, 479, 482, 488, 539-540, 573, 591, 600, 616, 795, 913
Consumers
  research, 29
  surveys, 29
Control, 4, 10, 58, 62, 64, 67, 71, 79, 85, 95, 113, 115, 133, 138, 140, 142, 145, 169, 172, 176, 196,

200, 203, 264, 267, 321, 337-338, 356, 359, 370-371, 401, 454, 461, 479, 503, 524, 546, 561, 612, 631, 652-653, 677-678, 754, 760, 769, 773-774, 782, 790, 792, 868, 883, 886, 889, 893, 906
Convertible collar, 213, 232
Cord, 696
Cost, 1, 8, 13, 18-19, 291, 482, 539
Cotton, 7, 482, 685, 727, 734-735, 738, 741, 747, 769, 784-785, 790, 795
Cotton flannel, 482
Cover, 4, 16, 28, 114, 435, 492, 557, 564, 631, 739, 769
Cowl
  square, 252, 254, 256-257, 259-261, 263-266, 268-269, 373, 506
  underarm, 262, 373
Crepe, 249, 335, 499, 509
Crepe de chine, 499
Crimp, 595-596
Crossmark, 54, 96, 100, 116, 125, 129, 138-140, 142, 170, 172, 177, 268, 287-288, 290, 397, 411, 451, 456, 462, 520, 549-550, 552, 554, 712, 757, 771, 773, 907
Crossmarks, 10, 757-758, 771
Crosswise grain, 7-9, 12, 290, 508, 726-727
Culottes, 658, 680
Customer, 13, 18, 27
Cut, 4, 7-12, 14, 16, 20, 35, 45-46, 50, 56, 66, 68-69, 71-72, 80-82, 86-89, 91, 95-98, 100-103, 113, 115, 117-126, 128-130, 132-133, 139-140, 142-143, 155-159, 161, 163, 169, 171-172, 174-175, 177, 179-181, 188-189, 194-198, 200-205, 213-216, 218, 220-223, 225-231, 239, 241-242, 248-250, 252-260, 264-269, 278, 280, 283-284, 286-287, 290, 292-294, 296, 298, 300-301, 304-314, 316, 318-319, 322, 325, 327, 329, 336-337, 339-344, 350-351, 353-355, 357, 359-370, 372-376, 379, 384-388, 391, 393-394, 397-400, 407, 410-412, 417, 419, 422-423, 427, 432-437, 439, 441-443, 449, 451, 453, 456, 458-460, 462, 464-465, 467, 471, 475-480, 483, 485-486, 488, 490, 492-493, 497-513, 517, 519, 522, 524-525, 528, 531-533, 542, 545-546, 550, 556, 558-560, 563-564, 568-569, 581, 585, 588-590, 592, 594-595, 599-601, 603, 605-607, 609-610, 612, 615-616, 618, 620-621, 627-630, 637, 643, 649, 653, 660, 662, 666, 671, 677, 681-685, 691, 694-695, 697-699, 701-703, 705, 708, 714, 719, 727-729, 736-739, 741, 746-747, 749-763, 768-790, 792-798, 819, 828, 830-832, 834-836, 840, 842, 844-848, 853-857, 859-860, 862-863, 866, 868, 870-871, 883, 886, 888, 891, 893-894, 896, 903-905, 907, 909-910
Cutter, 4, 16, 18
Cutting, 3-4, 16, 82, 90, 205, 242, 251, 335, 410, 499, 503, 510, 589, 591, 644, 658, 675, 677, 684, 704, 725, 763, 769, 793, 818, 882

D
Dart
  armhole, 38, 47, 49-50, 53, 58-59, 61, 67, 71, 78, 83-85, 93, 95-97, 103, 107, 128-130, 132-133, 142-146, 156, 158, 162-163, 169-170, 172-174, 176, 191, 201-204, 251, 263, 349, 351-352, 357, 368, 386-387, 392, 401, 404, 407, 410, 412, 424, 452-455, 458-460, 462, 464, 471, 517, 519-520, 529, 532-533, 541, 545, 561, 563, 565, 568, 594, 606, 611-612, 628, 649, 729, 735, 737, 747, 756, 770, 772, 813, 817-818, 828, 840-841, 844, 846, 852, 863
  back bodice, 38, 48, 51, 59, 67, 140, 145, 242, 263, 396, 404, 407, 410, 519, 529, 818-819, 843
  back neck, 22-23, 38, 40-42, 48, 74-75, 78, 96, 108-109, 132, 135-136, 148-149, 164-165, 182-183, 201, 206-207, 233-234, 244-245, 259, 270-271, 345-346, 380-381, 413-414, 425-426, 444-445, 469-470, 494-495, 512-513, 534-535, 541, 557-558, 564, 571-572, 587, 606, 622-623, 632, 638-639, 654-655, 720-721, 729-731, 742-743, 764-765, 787, 800-801, 809-810, 822-823, 837-838, 849-850, 873-874, 898-899, 911-912
  bust, 10, 22-23, 38, 40-42, 45-47, 50-51, 53, 58, 74-75, 80, 82-95, 99-106, 108-109, 112-113, 115-118, 120-126, 129-130, 132-133, 135-136, 138-140, 142, 145-146, 148-149, 152, 154, 156-159, 161, 164-165, 169, 182-183, 191-192, 194-195, 197-198, 200-204, 206-207, 233-234, 244-245, 252, 254, 256-258, 267-268, 270-271, 345-346, 380-381, 386-387, 404, 413-414, 425-426, 444-445, 449-450, 452-453, 456, 461-467, 469-471, 475-476, 478-479, 489, 494-495, 501, 507, 510, 512-513, 519, 532, 534-535, 541, 558, 561-566, 571-572, 622-623, 628, 638-639, 654-655, 720-721, 730-731, 742-743, 764-765, 769-770, 772, 781, 787, 790-791, 798, 800-801, 809-810, 813, 817, 822-823, 837-838, 844, 846-847, 849-850, 852, 873-874, 898-899, 911-912
  center front, 38, 40, 46, 54, 58, 78, 84-89, 97, 99-101, 106-107, 112, 118, 121-122, 126, 128, 130, 132-133, 156, 158-159, 169, 173, 192, 197-198, 200, 238, 240-242, 252, 254, 256-257, 260, 263, 265, 267-269, 294, 297, 300, 306, 313, 327, 331, 450, 453, 456, 461-462, 465, 471, 476, 479, 507, 510, 555, 557, 560-561, 587, 611-612, 615, 628, 633, 635, 637, 663, 699, 701, 705, 747, 756, 770, 790, 794, 798, 813, 817, 840, 844-845, 852
  eliminating, 636, 844
  flange, 168, 173-174, 176
  front bodice, 46, 60, 84, 99, 124-125, 138, 156, 173, 193, 252, 254, 256, 263, 267, 386, 407, 475-476, 529, 729, 817, 819
  neckline, 47, 49, 85, 91, 122-123, 125-126, 128-129, 132, 158, 195, 238, 240-242, 252, 255-258, 352, 424, 457-458, 507, 510, 532, 538, 555, 557-558, 560, 564-566, 611, 635, 637, 649, 729, 747, 756, 770, 790, 813, 817-818
  T, 49, 58, 64, 79, 344, 412, 587, 614, 618, 669, 673-674, 735
  underlay, 307, 326, 468, 471
  V, 64, 132, 268, 304, 424, 507, 510, 612, 614
  waistline, 4, 23, 42, 51, 53, 55-56, 60, 75, 85, 109, 117-118, 136, 149, 158, 162, 165, 183, 207, 234, 245, 251, 267, 271, 279, 291, 304, 306-310, 313, 344, 346, 381, 414, 426, 445, 448-450, 452-471, 495, 510, 513, 535, 572, 614, 619, 623, 639, 648, 655, 669, 674, 699, 718, 721, 729, 731, 743, 747, 756, 765, 769-770, 801, 810, 817, 819, 823, 838, 840, 843-846, 850, 874, 879, 883-884, 892, 899, 912
Darts
  back, 3, 23, 42, 43, 45, 54, 56, 58-59, 67, 71-72, 75, 78-79, 85, 100-101, 109, 115, 118-119, 121-124, 128-129, 132-133, 135-136, 138, 145, 149, 163, 165, 183, 189, 197, 204, 207, 234, 245, 271, 278-280, 286-287, 294, 306-307, 310, 312, 314, 319, 346, 351, 381-382, 400, 414, 426, 445, 449, 452-457, 459, 461-463, 465, 468, 470, 478-479, 495, 501-502, 513, 529, 535, 568, 572, 594, 604, 611, 613, 615, 623, 629, 631, 639, 643, 655, 668, 671, 675, 681-682, 691, 693, 698-699, 713, 718, 721, 731, 743, 765, 790-792, 801, 810, 818, 823, 834, 838, 840, 843-844, 850, 863, 874, 883, 892, 899, 912
  hidden, 713
  multiple, 83, 117, 351
  trueing, 59
  waist, 23, 42, 45, 54, 56-59, 67, 75, 78, 85, 97, 100-101, 105, 107, 109, 112, 116-118, 124-125, 128-130, 132-133, 135-136, 138, 145, 149, 163, 165, 183, 191, 207, 234, 245, 249, 271, 274, 277-280, 287, 306, 309, 314, 327, 344, 346, 381, 414, 426, 445, 449, 452-457, 459, 461-463, 465, 467, 470, 478-479, 495, 501-502, 513, 529, 535, 568, 572, 594, 604, 611, 613, 615, 623, 639, 647, 655, 668, 675, 681-683, 691, 697-699, 713, 718, 721, 731, 743, 765, 769, 790, 792, 801, 810, 818, 823, 834, 838, 840, 844, 850, 863, 874, 883, 892, 899, 912
Date, 807
Delivery, 591
Denim, 574
Design
  applied, 83, 277, 485, 493, 570
  ease, 43-44, 54, 61, 71, 80, 83, 95, 100, 138, 142, 194, 196, 263, 349, 351-352, 356, 358-359, 368, 370, 373, 377, 379, 461, 466, 472, 482, 487-488, 538, 561, 581, 603, 781, 783, 818, 832, 844, 884
  geometric, 11
Designer, 4, 17-18, 71, 83, 113, 154, 489, 493, 499, 565, 711, 805, 807
Designers
  Italian, 807
Dirndl skirt, 274, 292, 311
Distribution, 16, 27
Dolman sleeve, 376, 386, 389
Dots, 6, 36, 191, 545
Double-knit, 727
Down, 12, 17, 30, 35-38, 46, 48-49, 55-56, 96, 129, 162, 169, 171, 173, 175, 188, 199, 201, 203, 215, 239, 252, 254-257, 259-260, 265-266, 268, 287, 298, 302, 307, 309, 311, 316, 335, 351, 355, 357, 360-361, 366, 368-369, 371-374, 376, 396, 399, 402-403, 406-407, 410, 420, 439-440, 443, 452, 456-457, 461-463, 475-476, 489, 493, 502, 519-520, 525, 528-530, 532, 542-543, 546, 553, 568-569, 578, 581-582, 595, 598, 604-606, 608, 611-613, 618, 620-621, 628-629, 635-636, 643, 649, 651, 668, 670, 673, 675, 680, 683, 687, 694, 696-697, 700, 705, 707, 727, 740, 751, 757, 769-771, 773-775, 779, 817-819, 828, 831, 840, 847, 852, 854, 857, 862, 866, 869, 882-883, 891, 904
Drafting, 6, 34-35, 43-76, 80, 354, 499, 542, 545, 547, 553, 573, 581, 611, 786, 811-823, 863, 905
Drape, 18, 154, 248-249, 251, 255, 269, 505, 649
Drawing, 56, 87, 332, 335, 423, 465, 770, 808, 835, 861, 872
Dress, 43-44, 46, 54, 71, 179, 328, 356, 384-386, 394, 430, 448, 454, 456-459, 461-462, 498-500, 506, 509, 542, 574, 604, 616, 627, 807
Dresses, 249, 320, 332, 404, 407, 440, 447-472, 474, 497-513, 517, 529, 557, 627, 727, 806, 839-850
Drying, 725, 770
DuPont, 725, 727
Dyeing
  fiber, 725
  garment, 725

E
Ease
  amount of, 62, 65-66, 68, 194, 581, 583
  design, 43-44, 54, 61, 71, 80, 83, 95, 100, 138, 142, 194, 196, 263, 349, 351-352, 356, 358-359, 368, 370, 373, 377, 379, 461, 466, 472, 482, 487-488, 538, 561, 581, 603, 781, 783, 818, 832, 844, 884
  style, 83, 138, 523, 538, 545, 561
  wear, 579-581, 583-584, 603-604, 606-607, 613, 618, 622
Education, 1, 25, 43, 77, 111, 137, 151, 167, 185, 209, 237, 247, 273, 349, 383, 417, 429, 447, 473, 497, 515, 537, 573, 625, 641, 657, 723, 733, 745, 767, 803, 811, 825, 839, 851, 877, 901, 913
Elastic thread, 847
Elastomer, 725
Elbow measurement, 359, 394
Elle, 807
Elongation, 727
Emphasis, 190
Ends, 8-9, 36, 47, 61, 83, 86, 99, 116, 122, 130, 138, 154, 173, 220, 222, 230, 249, 281-282, 309, 313, 353-354, 430, 436, 438, 449, 467, 483, 487, 506, 526, 543, 590, 594, 601-602, 635, 643, 682, 692, 694, 700-701, 755, 769
Evaluation, 24, 43, 58, 71, 76, 78, 97, 107, 110, 210, 232, 235, 248, 269, 272, 274, 344, 347, 349, 379, 382, 384, 412, 415, 417, 424, 427, 471, 851, 855, 875
Extend, 37, 64, 68, 96, 126, 142, 146, 158-159, 163, 169, 175-176, 198-199, 218, 222, 225, 229,

238, 240-241, 253, 263, 266, 278-279, 302, 304-305, 307-309, 311, 313, 328, 330, 339, 353, 359, 364, 367, 371, 395-396, 401, 411, 451, 455, 461-463, 471, 501, 510, 519-520, 522, 529, 548, 552, 554, 560-562, 564, 582, 586-587, 589-590, 600-601, 608, 611, 615, 627, 629, 633, 636, 662, 676, 678, 680, 696, 698, 705, 713, 737-738, 781-782, 840, 846, 852-854, 858, 869, 886, 909
Extension, 88, 101, 146, 159, 162, 171, 173, 175-176, 179, 198, 201, 210, 220-222, 226, 229, 240-243, 253, 255, 258, 263, 267, 279, 281-282, 305, 312, 330-331, 353, 417, 419-421, 424, 434, 460, 475, 486, 524, 526-528, 539, 548, 551, 553, 555, 567, 593, 605, 607, 610, 615, 617, 619, 628-630, 635, 644, 649, 660-662, 667, 671-672, 679, 682, 696, 715, 748, 754, 844, 853-854, 857, 866, 869, 878-879, 881, 883, 890, 893, 906

F

Fabric
  bulky, 154
  grading, 13, 16
  preparation, 8, 499, 594, 649
  proportion, 12, 600, 805
  quality, 13
  weight, 7, 67, 154, 291, 338, 344, 457, 482, 488, 499, 539-540, 583, 727
  width, 153-154, 179-180, 230, 281, 290, 292, 309, 315-316, 318, 328, 344, 352, 434, 492, 499, 558, 600, 610, 615, 630, 643, 649, 660, 684-685, 694, 725-726, 739, 749, 758, 784, 793, 797-798, 855
Fabric width, 315-316, 318, 684-685
Fabrics
  characteristics, 725, 727, 769
  nonwoven, 540, 591
  weaving, 8
Fads, 807
Fairchild Publications, 807
Fashion
  cycles, 17
Fashion centers, 807
Fashion leaders, 13
Fashion magazines, 454, 807
Felt, 2, 72, 482, 795, 797-798
Fiber
  parts, 592
Fibers
  content, 727
  dyeing, 725
Fill, 8, 379, 424
Filling, 7, 727
Filling yarn, 7
Findings, 694
Finish
  of the fabric, 600
Finishing
  tailoring, 540
First pattern, 14
First samples, 18
firstVIEW, 808
Fit
  guidelines, 55, 82, 84-85, 123, 155, 189-190, 194, 196-197, 200, 205, 449, 452, 461-462, 475-476, 628, 678, 749-751, 758-759, 781, 790, 792, 847, 879
  models, 18, 28, 34, 43, 46, 54, 61-62, 577, 581
Fitted sleeve, 61
Fitting, 14, 17, 29, 35, 43-44, 47, 50, 52, 57, 62, 64-65, 79-80, 82, 186-189, 198, 224, 248, 250-251, 253, 255, 257, 265, 358, 465, 473, 480, 485, 499, 503-504, 564-565, 570, 573, 590, 599, 602, 606, 612, 614, 618, 630-631, 660, 662, 667, 670-672, 675, 678, 715, 729, 749, 757, 770, 806, 864, 906
Flannel, 482, 595
Flap pocket, 436
Flat:
  pattern, 31
Flat patternmaking, 6, 10, 78-82, 87
Flexibility, 13, 27, 61, 274, 277, 297, 365, 407, 843
Floor, The, 12, 37, 57, 338, 452, 504, 570, 576, 812-813
Focal points, 275
Folding, 3, 86, 101, 609
Folk costumes, 807
Footwear, 807
Form
  hollow, 31, 44, 190
Formal wear, 418
Forms, 11, 26, 28-29, 35, 62, 82, 173, 321, 323, 573, 575, 812-813, 843
Foundation patterns, 385, 453, 489, 499, 517, 606, 712, 771-772, 847
French curve, 2, 49, 64, 454, 520, 582, 584, 735, 857
French dart, 78, 84, 89, 97, 251, 269
Front darts, 56, 287, 294
Front torso, 392, 461, 479, 541, 628, 848

G

Gap, 52-53, 170, 763
Garment design, 16
Gauge, 724-726
Gauze, 249
Georgette, 499
Gerber, 16
Goods, 684-685
Gored skirt, 293, 680, 834
Government, 29
Graded, 15, 323, 806, 815-816
Grader, 4, 14-15, 543
Grading, 13, 15-16, 538, 542-544
Grain, 7-9, 12, 58, 61, 70, 132, 155, 231, 250-251, 260, 290, 338, 351-352, 365, 401, 411, 477, 499, 502-503, 508, 545, 584, 602, 630, 676, 712, 714, 726-727, 736, 862
Grosgrain, 482, 487-488
Groups, 277, 320, 344, 591, 817, 820
Grunge look, 807
Gusset, 390, 396-399, 412

H

Halter, 186, 205, 262-263, 746, 753, 760
Hand, 16, 23, 28, 42, 61, 75, 79, 109, 136, 149, 165, 183, 207, 234, 245, 271, 346, 352, 365, 381, 387, 414, 426, 445, 470, 486, 495, 513, 523-524, 535, 572, 576, 595, 597, 599, 602, 607, 623, 639, 655, 694, 721, 725, 731, 738, 743, 765, 801, 810, 815-816, 823, 838, 846, 850, 859, 874, 899, 912
Handling, 128, 509
Harness, 499
Heat, 592, 594
Hems, 4, 286, 598
Hip curve, 2, 614, 620
Hip measurement, 54, 161, 300, 509, 620, 661, 793
Hoods, 341, 625-639
Horizontal balance, 12, 26, 34, 37, 71, 163
Hot items, 643

I

INC, 15, 913
Innovation, 13
Inspiration, 511, 556, 804, 807
Interfacings, 564, 570, 588, 592
Interlock, 684
Inverted pleat, 171
Iron, 492-493, 591, 595
Item, 489, 532, 611, 619, 665, 703-704, 784
Items, 19, 435, 482, 491, 643

J

Jackets
  men's, 574, 591
JCPenney, 29
Jersey, 913
Jobs, 13
Jumpsuits, 659, 727, 877-899

K

Knit tops, 449, 574, 735
Knitted fabrics
  sleeve, 591

L

Labels, 806
Lace, 795, 797, 807, 846-847
Lantern sleeve, 349, 365, 367
Lapel, 421, 538-539, 547-555, 557-560, 562, 564-566, 568-569, 573, 586-587, 592, 597, 603, 649, 866, 869
Large sizes, 29
Leather, 18, 418-419, 442, 492
Lectra, 16
Lengthwise grain, 7, 9, 250-251, 260, 352, 499, 502-503, 508, 726
Level, 18, 30, 34-35, 37, 46, 61, 64, 68, 84, 100, 122, 158-159, 169, 190, 205, 223, 252, 254, 256-257, 264, 268, 276, 279, 293, 302-303, 339-340, 344, 351, 355, 357, 359, 362, 370-373, 376, 392, 397-398, 402, 405, 408, 410-412, 420, 431, 443, 449-452, 455-456, 459-460, 465, 474, 481, 506, 510, 519, 529, 546-548, 551, 553, 555, 567-568, 576, 585, 615-616, 618, 620, 629, 631, 650-652, 660-664, 667, 669-672, 674-676, 681, 683, 689, 694, 697, 699-700, 705-707, 712, 716, 718, 729, 737, 750-751, 753, 755, 757, 759, 769, 774, 779, 789, 794, 796-797, 812, 814, 820, 832, 846, 852, 857, 859, 867, 869, 871, 878-882, 891, 893, 904-905, 908
Licensing, 807
Line, 1, 7, 9-10, 12, 14, 18, 26, 33-39, 44, 46-51, 54, 56-61, 63-65, 68, 71-72, 80, 84, 87, 89-91, 95-96, 99-104, 115-116, 118, 120-126, 129-130, 133, 138-140, 142-143, 145, 152, 154-156, 158, 162-163, 169-172, 174-177, 179-181, 190-195, 197-205, 211-215, 220-222, 224-227, 229-232, 239-241, 251-258, 260, 263-269, 274, 279, 281-286, 288, 290-293, 295, 297-298, 300, 302, 304, 306-309, 312, 317-322, 324-328, 330-331, 343-344, 351, 353-355, 357, 359-374, 376-378, 387-388, 391-395, 397-403, 405-411, 418-420, 422-424, 430-431, 433-434, 436-437, 439, 443, 448-452, 454-457, 459-464, 475, 478-479, 481, 487-488, 493, 503, 505-507, 509, 519-521, 523-532, 539, 541-546, 548-555, 557-558, 560-563, 566-567, 569-570, 576-578, 581-588, 592-594, 596, 598, 601, 604-606, 608-612, 614, 616, 618-621, 626-630, 632-637, 643-645, 647-652, 660, 665-667, 669, 674-675, 677, 680-681, 683, 686, 689-696, 699, 705-706, 712-713, 715-717, 728-729, 736-741, 747-751, 753, 756-758, 761, 763, 768, 770-771, 773-775, 777-783, 788-793, 796-798, 812-813, 817-821, 828, 830-832, 834-835, 840, 842, 844-847, 852-862, 866, 869, 872, 879, 882-883, 895, 897, 904-905, 907, 909-910
Linen, 3, 28, 482, 540, 588, 591-592
Lines
  store, 18, 643
Lining, 72, 161, 258, 312, 437-439, 457-458, 471, 473-474, 477, 482-485, 487-488, 500, 539-541, 554, 560-564, 570, 588-591, 596-602, 615, 619-621, 628, 648-649, 653, 678, 683-685, 687-688, 692, 694-695, 702-704, 768, 773-778, 780, 783, 787-788, 791, 795-796, 798-799, 870-872, 910
Linings, 20, 591, 620-621
Look, 79, 115, 160, 173, 179, 188, 249, 275, 293, 350, 482, 491, 499, 517, 574, 586, 659, 682, 714, 728, 807, 886
Loops, 230, 374, 395, 418-419, 434, 482, 615, 658, 682, 684-685, 691, 713, 753-754, 882
Los Angeles, 13, 15, 591
Lycra, 482, 725, 727, 736, 740, 746, 750, 902-903, 905, 907

M

Magazines, 454, 807
MAGIC, 3, 79
Manager, 20
Mandarin collar, 210, 224-226, 229, 232, 875
Manufacturer, 2, 8, 13, 18-19, 27, 29, 179, 323, 807
Manufacturers, 13, 16, 18, 27, 29, 591, 643, 725, 795, 806, 815-816
Manufacturing
  apparel, 13
Marker maker, 4, 11, 14-15
Marker making, 13
Markers, 6, 13, 684
Marking, 3-4, 6, 8, 12, 14, 16, 36, 84, 129, 132, 179-180, 203, 251, 290, 302, 306-307, 328, 421, 449, 452, 458, 484, 492, 505, 528, 584, 594, 643-646, 877, 891
Markings, 68, 96, 145, 189-190, 196, 321, 357, 363, 365, 369, 372, 377, 403, 411, 499, 666, 693, 712, 777, 794, 840
Materials, 29, 591
Measurement

  - biceps, 23, 42, 43, 58, 62-63, 65, 75, 109, 136, 149, 165, 183, 207, 234, 245, 271, 346, 351, 357, 359, 365, 371, 381, 414, 426, 445, 470, 495, 513, 530, 535, 542-543, 572, 583, 607, 611, 623, 639, 650, 655, 721, 731, 736-738, 743, 750, 762, 765, 801, 810, 815-816, 820, 823, 828, 831, 838, 850, 859, 864, 874, 899, 905, 912
  - crotch, 22-23, 30, 36, 40-42, 74-75, 108-109, 135-136, 148-149, 164-165, 182-183, 206-207, 233-234, 244-245, 270-271, 345-346, 380-381, 413-414, 425-426, 444-445, 469-470, 494-495, 512-513, 534-535, 571-572, 576, 579-580, 620, 622-623, 638-639, 646, 654-655, 661-663, 667-668, 672-673, 675-676, 696-697, 706, 720-721, 730-731, 742-743, 748, 750-751, 764-765, 774, 778-779, 792-793, 800-801, 809-810, 814-816, 822-823, 837-838, 849-850, 873-874, 881, 883-884, 886, 893, 898-899, 906-907, 911-912
  - elbow, 23, 32, 42, 63, 75, 109, 136, 149, 165, 183, 207, 234, 245, 271, 346, 351, 354, 357, 359, 371, 381, 394, 398, 414, 426, 445, 470, 495, 513, 523, 535, 542, 572, 576, 583, 623, 639, 650, 655, 721, 731, 736-738, 743, 750, 762, 765, 801, 810, 820, 823, 828, 838, 850, 857, 859, 874, 899, 905, 912
  - overarm, 23, 42, 75, 109, 136, 149, 165, 183, 207, 234, 245, 271, 346, 381, 391, 397, 414, 426, 445, 470, 495, 513, 535, 572, 623, 639, 655, 721, 731, 743, 765, 801, 810, 815-816, 823, 838, 850, 859, 874, 899, 912
  - skirts, 59, 281, 287, 297, 300, 308, 324, 333-336, 339-346, 501, 828, 831, 837-838
  - wrist, 23, 32, 42, 63, 75, 109, 136, 149, 165, 183, 207, 234, 245, 263, 271, 346, 351, 354, 357, 365, 371, 381, 391, 397, 414, 426, 445, 470, 495, 513, 523, 535, 572, 576, 583, 623, 639, 655, 721, 731, 736-737, 743, 750, 765, 801, 810, 820, 823, 828, 838, 850, 857, 859, 874, 899, 905, 912
- Media, 17
- Melton, 540
- Minimum, 396, 727
- Misses, 29
- Missy, 37, 40, 46, 58
- Models, 18, 27-28, 30, 34, 36, 43, 46, 51, 54, 61-62, 577, 581, 883
- Moderate, 398, 727
- Mohair, 18
- Music, 807
- Muslin, 3, 7-8, 11-12, 45, 49-53, 59, 69, 81-82, 88, 91, 100-101, 180, 540, 564, 570, 581, 643-644, 646, 649-652, 678, 712, 718, 819

N

- N, 23, 31, 42, 47, 49, 55, 63-64, 75, 109, 136, 149, 165, 183, 207, 234, 245, 251, 271, 346, 381, 414, 426, 445, 470, 495, 503, 513, 535, 562, 572, 576, 578, 582-583, 604-605, 612-614, 617-618, 620, 623, 633, 639, 655, 668-669, 673-674, 721, 731, 743, 765, 801, 810, 817-818, 820-821, 823, 838, 850, 874, 879, 882, 899, 912
- Nap, 9, 684
- Natural, 91, 100, 238, 278-279, 350, 418, 499, 613, 617, 699, 709, 725, 753, 770, 806
- Needle, 8, 399, 621
- Net, 482
- Niche, 13
- Nonwoven, 540, 591-592
- Notched collar, 851, 865-866
- Notcher, 3, 379
- Notches, 3-4, 17, 58, 61, 64, 67, 69, 71-72, 95, 100, 114-115, 132-133, 138, 140, 142, 145-146, 159, 169, 171-173, 176-177, 200, 218, 231, 240-241, 243, 258, 260, 265, 282, 284, 290, 296, 298-299, 312, 351, 358-359, 368, 372, 376, 379, 382, 388, 392, 396, 400-402, 410-411, 423, 432, 443, 456, 475-476, 479, 486, 501, 521-522, 527, 530-533, 546, 561-563, 584, 595-596, 602, 607, 645, 651-653, 682, 688-689, 703, 729, 749, 762, 773-774, 784, 798, 821, 831, 857, 861
- Notions, 795
- Nylon, 492, 727, 747, 795-798

O

- Off-grain, 714
- Opening, 3, 90, 222, 292, 306, 314, 368, 374, 418-419, 429, 432-435, 488, 491, 493, 524, 599, 618, 621, 710, 717, 741, 757-758, 771, 889, 891, 904
- Operator, 285
- Outerwear, 807
- Overhead, 631-632, 636
- Overlock seam, 72
- Oversizing, 516, 531, 858

P

- Pants
  - culottes, 658, 680
  - jumpsuits, 659, 727, 877-899
  - tapered, 700-701, 709, 880, 887, 891, 897
- Paper, 1-3, 6, 14-15, 39, 45-46, 53, 63, 67-68, 86-88, 90-96, 100-101, 103-106, 115-118, 120-126, 129, 132-133, 141, 143, 155-157, 159, 163, 170, 174-175, 177, 179-181, 194, 198, 200-201, 203-205, 213-215, 218, 220-231, 239, 241-243, 251-261, 263-269, 278, 280-281, 283, 286, 288, 290, 292-293, 295-296, 298-299, 301-302, 306-307, 312, 314, 317-319, 322, 325-327, 329-330, 336-337, 339-343, 353, 355, 357, 359-364, 366-374, 376, 379, 386-387, 393, 396, 398, 402, 410-412, 423, 430-437, 439, 442, 449, 457-458, 460, 464-465, 472, 475-477, 479, 485, 490, 505, 507, 519, 528, 530-531, 533, 542-543, 545-546, 548-554, 559, 562, 565, 567-569, 585, 587-588, 603, 605-607, 610, 627, 629, 643-653, 666, 675-677, 679, 681, 695-696, 705, 708, 712, 728, 736-739, 741, 747, 749-753, 756-757, 759-763, 770-772, 774, 777-780, 782-784, 786-788, 791-792, 794, 796, 798, 819-820, 828, 830-831, 835-836, 840, 845, 848, 852-854, 856-857, 859-860, 862, 866, 868, 870-871, 882-883, 888, 904-905, 907, 910
- Pattern
  - foundation, 6, 30, 43-44, 54, 161, 225-226, 268, 274, 278, 285, 287, 302, 371, 386, 389, 392, 394-395, 400, 404, 409, 449, 453-454, 456-457, 459, 461, 463, 475-479, 481, 485-486, 488-491, 499-500, 519, 532, 541, 543, 561, 565, 567, 573-574, 581, 583-585, 599, 605-606, 611, 616, 627, 633, 635-636, 658, 660, 662, 671, 676-681, 683, 693, 696-700, 705, 712-713, 735, 737-738, 747, 749, 756, 759, 770-772, 777, 786, 790, 792-794, 817, 828, 840-841, 844, 846-847, 852-853, 858-859, 861, 865, 867, 869, 880, 884, 889, 894-896, 909
  - master, 79
- Patterns
  - computer, 13-15, 18, 43, 45, 643
  - draping, 7, 45, 499, 510
  - flat, 6, 17-18, 78-81, 87, 217, 223, 242, 442, 499, 599, 615, 629, 643, 686, 739, 847
  - plotting, 87, 147, 181, 194, 422, 465, 489, 896
  - use of, 13, 83, 174, 187, 189, 194, 196, 388, 482, 499, 728, 754, 795
- Pegged skirt, 274, 306
- Pencils, 2-3
- performance, 18
- Peter Pan collar
  - variations, 232, 826
- Petite, 29, 48
- Pieces, 6, 14, 20, 72, 100, 138, 140, 146, 179, 341, 353, 433, 458, 508, 554, 564, 588, 590-591, 784, 787, 845, 888
- Pin, 2, 12, 35, 37, 39, 50, 52-53, 57, 68, 70, 90, 99, 104-106, 167-183, 190-191, 194, 196, 202-203, 205, 216, 231, 251, 257, 280-282, 288, 336, 338-340, 439, 443, 461, 481, 486, 500, 503-505, 507, 509, 519, 576-578, 585, 593, 595-598, 602-603, 606, 621, 637, 643-651, 663, 677, 680, 688, 690-692, 697-698, 704, 712, 715-718, 726, 728, 739, 751, 757-758, 776, 781, 790, 792, 797-799, 812-814, 831, 854, 862
- Pins, 2-3, 12, 28, 35-36, 90, 180, 456, 643-644, 646, 651, 715, 717, 783, 812
- Plaids, 213, 352, 805
- Plan, 79, 223, 430, 457, 489
- Planning, 315, 317, 323
- Plastic ruler, 66
- Pleated skirt
  - box-pleated skirt, 274, 325
- Pleats, 3, 83, 112-113, 117-118, 120, 132, 154, 169, 172, 194, 201, 249, 264-266, 269, 274, 277, 279, 297-298, 306-307, 320-325, 327, 344, 351, 382, 408, 440-441, 443, 467, 482, 507, 523, 607, 616, 645-647, 682, 687, 691, 857, 885, 896
- Plotting patterns, 465
- Plumb line, 12
- Pocket
  - flap, 435-436, 440-441, 587-588, 590, 594, 600-601
  - patch, 435, 694-695, 897
  - welt, 435, 573, 587-588, 590, 594, 600, 615-616, 620-621, 870-871
  - yoke, 606, 619, 658, 702-703, 713, 853, 856, 875, 888
- Polyester, 795
- Polymer, 725, 727
- Poplin, 482
- Portion, 188, 407, 410, 661
- Pouch pocket, 437
- Preparation, 8, 231, 386, 407, 499, 542, 559, 576, 594, 649-650, 681, 811-812
- Princess bodice, 473-475
- Princess dress, 458
- Print, 17, 72
- Product development, 1, 18
- Production, 1, 4-6, 13-20, 61, 72, 179, 770
- Production manager, 20
- Production personnel, 4
- Prototype, 212, 485, 500
- Pulling, 231, 715
- Pull-on pant, 658, 698
- Punch holes, 71, 100, 114, 119, 126, 175, 318, 335, 339-340, 456
- Push pins, 3, 35, 90, 456, 643, 783

Q

- Quality, 13
- Quarter, 5, 54, 274, 329, 333-335, 339-340, 351, 357, 362, 365, 377, 379, 418, 421, 591

R

- Raglan sleeve, 384, 400, 412, 746, 761-762
- Ranges, 351, 482, 805
- Rayon, 249, 482, 499, 685
- Recovery, 724-727, 729, 747, 770
- Regular, 36, 396, 575, 580, 617, 795, 806, 868, 883
- Renewable, 725
- Research, 13, 16, 29, 540
- Resin, 592
- Retail, 617, 643, 808
- Rib, 39, 727, 736, 749, 859
- Ribbons, 484
- Roll-up cuff, 349, 352, 355
- Rounding, 11
- Rubber, 747
- Ruffle, 472, 780, 807
- Ruler, 1-2, 5, 15, 36, 55, 63, 66, 190-193, 259, 269, 295, 335, 355, 387, 509, 549, 552, 554, 569, 645-646, 652, 664, 674, 726, 814, 817-818, 869
- Run, 250, 499, 595-596, 682, 695, 727
- Running, 179, 502, 660

S

- Safety, 16, 698
- Sales
  - representatives, 18
- Salesperson, 19
- Sample, 15, 17-18, 30, 113, 154, 317, 323, 332, 339-340, 399, 421, 482, 531, 547, 581, 617, 684, 775, 806
- Satin, 249, 482, 499, 509
- Scissors, 2
- Scoop, 128, 394, 423
- Scoop neckline, 128, 394, 423
- Seam
  - allowance, 3-4, 43, 72, 82, 86, 118-119, 124-125, 128, 173, 231, 251, 283, 286, 292-293, 299, 303, 323, 327, 334-335, 338, 343, 374, 398, 432-433, 441, 483, 486, 488,

522, 527-528, 540, 564-565, 568, 589-590, 592, 594, 599, 610, 658, 670-671, 675, 678, 699, 741, 750-751, 753, 756, 760, 762, 775, 778, 784, 786, 798, 855, 857-859, 872, 883-884, 903-904
Seam allowance, 3-4, 43, 72, 82, 86, 118-119, 124-125, 128, 173, 231, 292-293, 299, 303, 323, 327, 334-335, 343, 374, 398, 432-433, 441, 483, 486, 488, 522, 527-528, 540, 564-565, 590, 594, 599, 610, 658, 670-671, 675, 678, 699, 741, 750-751, 753, 756, 760, 762, 775, 778, 784, 786, 798, 855, 857-859, 872, 883, 903-904
Seam allowances, 82, 335, 339-340, 467, 678, 695, 752, 774, 779, 832, 907, 909
Sears, 29
Season, 18, 643, 805
Seasons, 707
Selling Price, 539
Selvage, 7-9, 14, 290, 315, 503, 526, 684, 726
Serge, 441, 686, 692, 735, 739
Service, 13, 16, 808
Sesame Street, 807
Set-in sleeves, 350
Shape, 2, 20, 28, 31-32, 36, 45, 52, 64, 79-83, 85-88, 90-95, 98-99, 102-107, 122-124, 126, 128-130, 139-140, 153, 201-202, 204, 211, 217, 222, 227, 269, 274-276, 286, 292, 295, 300, 303-304, 307, 354-355, 362, 364, 387, 392, 422, 431, 435, 437, 439, 456, 460, 462, 468, 482, 499, 520, 539, 544, 546, 550-552, 554-555, 557-558, 561, 568, 582, 587, 589, 593, 595, 605, 607, 615, 629, 631, 643, 645, 659, 671, 675, 677, 681, 697, 717, 725, 727, 748, 758-759, 769, 774, 782, 784-786, 791, 806, 817-818, 831, 835, 847, 868, 905, 908
Shaping, 2, 11, 118, 139-140, 143, 584, 633, 705, 748, 820-821, 863
Shawl collar, 538, 557-558, 560
Sheath, 448, 454-455, 457
Shed, 591
Shift
  A-line, 297, 454, 840
  blouson, 454
  sheath, 448, 454-455
  tent, 448, 454, 839, 846
Shirt collar, 210, 212-213, 226, 713, 826-827
Short sleeves, 359
Shorts
  Bermuda, 658, 667, 707, 709, 891
  short, 658, 707-709, 769, 877, 891-893
Showroom, 18
Side seam length, 454-455, 778
Silent language, 4
Silhouettes, 28, 293, 300, 350, 454, 489, 661
Silk, 2, 249, 482, 499
Single, 5, 78, 83, 87, 90, 117, 190, 230, 317, 320, 328, 435, 454, 461, 540, 727, 735
Size, 13, 15, 17, 22, 28-29, 35, 37, 40-41, 61-62, 72, 74, 79, 82-84, 99-100, 108, 135, 138, 148, 164, 182, 196, 206, 233, 244, 250, 270, 345, 380, 413, 418, 424-425, 427, 435, 444, 453, 469, 494, 512, 534, 539, 557, 570-571, 575, 579-581, 583, 590, 600, 607, 617, 622, 638, 654, 662, 684, 693, 720, 728, 730, 741-742, 764, 771-772, 774, 800, 804-807, 809, 812, 814-817, 820, 822, 836-837, 844, 848-849, 864, 869, 873, 878, 890, 897-898, 906, 911
Size range, 29, 806
Sizes, 14, 29, 35, 46, 48, 50, 62, 323, 418, 421, 435, 483, 575, 581, 583, 662, 669-670, 673, 693, 757, 795, 804-806, 812-813, 815-816, 818, 820, 831, 833-834, 836, 841, 843-844, 846, 848, 852-853, 863-865, 867-869, 878, 880, 882-883, 885-886, 889, 892-893, 896-897
Sketch, 18-19, 81, 98, 154, 465, 574, 693, 711, 759
Sketches, 808
Skirt
  basic A-line, 285-286, 293, 665
  circle, 58, 72, 274, 289, 317, 320-321, 333-337, 339-344, 456, 680, 775, 826, 833
  dirndl, 274, 291-292, 311
  divided, 665
  eased, 285
  flared, 274, 276, 279, 283, 285, 288-289, 291, 293, 297, 301, 313, 317, 325, 330, 500, 509, 680, 711, 826, 834
  godet, 274, 328
  gored, 274, 293, 680, 834
  jean, 675, 729, 883
  peg, 306, 344
  pleated, 274, 293, 297, 323, 325, 665, 826, 833
Slashing, 79-80, 82, 87, 153, 179, 477
Sleeve
  basic Dolman, 384, 389
  gusset, 390, 396-397, 412
  raglan, 384-392, 394-397, 400-402, 404-412, 414, 532-533, 539, 746, 761-762, 851, 861-863
  shoulder pads, 349, 352, 388, 396, 412, 530, 539, 541, 564, 570, 581, 589, 591, 867
Sleeve board, 595
Sleeves
  bell, 349, 357, 362, 826, 829
  bishop, 349, 357, 362, 377-379, 875
  dolman, 376
  front and back, 44, 65, 341, 358, 403, 422, 712-713, 831, 846, 903, 907
  kimono, 352, 403, 406, 574
  lantern, 349, 365, 367
  petal, 349, 363-364, 826, 829
  set-in, 349-350
Slippage, 3, 251
Snaps, 222, 395, 418
Spandex, 727, 747, 754, 769, 784-785, 792-793
Spiegel, 29
Sportswear
  women's, 418
Spreading, 16, 82, 153, 179, 226, 266, 291, 329, 351, 366, 373, 412, 477, 542, 776, 778, 885
Spreading and cutting, 16
Staple, 393, 757
Stitch, 57, 59, 66, 69, 85-86, 88, 114-115, 118, 173, 180, 253, 255, 263, 280-282, 318, 321-322, 399, 434-436, 439, 441-443, 458, 471, 480-481, 483-484, 486, 488, 492-493, 499, 504, 507, 524-525, 527-528, 560, 585, 588, 593-603, 609-610, 615, 621, 653, 687-692, 694-695, 697, 704, 710, 715, 727, 735, 737-738, 749, 754, 758, 782, 784, 795-799, 831-832, 847, 906, 910
Stretching, 8, 424, 643, 727, 729, 739, 796-797, 906, 910
Structure, 17, 32, 725
Style, 12, 72, 83, 130, 138, 152, 158, 161, 199, 201, 211, 218, 223, 228, 232, 353, 386, 388, 424, 438, 443, 471, 499, 523, 531, 538-539, 545, 547, 558, 561, 568-570, 586-588, 590, 616, 662, 665, 699, 701, 708, 729, 761, 780, 784, 796, 807, 841, 878, 889
Style number, 72, 590
Style tape, 12
Suede, 18
Suits, 43, 56, 769, 790
Supplies, 2, 482, 489, 492, 573, 591, 741, 768, 776, 780, 795
Surplice, 186-187, 201
Surveys, 29
Suspenders, 693
Swatches, 19-20, 540
Sweep, 275-276, 283, 285, 287, 289-290, 314, 333, 339-340, 344, 362, 395, 454, 463-464, 834, 836, 845, 892
Swimsuit, 768-770, 772-775, 779, 787, 793-795, 799, 909
Swimwear, 449, 725-727, 754, 767-801, 901-912
Synthetic fibers, 320, 725

T
Tailored jacket, 538-539, 566, 574
Tailoring, 540, 913
Tape, 3, 5, 12, 35, 37-39, 50, 53, 62, 88, 96, 99, 102-103, 120-124, 126, 129-130, 132-133, 139, 143, 146, 169, 195, 198, 202, 204-205, 216, 256, 267, 278, 280, 286, 308, 327, 335-336, 338-340, 369, 374-375, 411, 424, 443, 456, 460, 481-482, 591-592, 595, 603, 631, 663, 683, 689, 691, 699, 708, 775, 789, 796, 812-814, 847
Tape measure, 37, 335-336, 339-340
Taste, 18
Technology
  manufacturing, 13
Telephone, 15, 19
Television, 807
Tent, 448, 454, 463, 839, 846-847
Terms, 1-2, 6-7, 12, 14, 26, 34, 61, 78, 82, 210-211, 274, 276, 315, 538-540, 543, 658, 660, 707
Texture
  direction, 727
Themes, 807
Threads, 7-8, 591, 595, 601, 847
Three-dimensional, 16, 81
Time, 17, 28, 35, 71, 80, 327, 465, 503, 528, 564, 570, 599, 606, 652, 707, 714, 729, 749, 757, 770, 805-806
Toile, 8
Tolerance, 46
Touch, 49, 64, 68, 96, 218-220, 260, 369, 371, 398, 450-451, 460, 517, 519, 529, 549, 565, 584, 628, 666, 757, 771, 818, 821, 862
Town and Country, 807
Tracing, 3, 6, 71, 86, 90, 116, 118, 196, 306, 327, 423, 431, 434, 436, 458, 526, 545, 549, 552, 554, 588, 643, 650, 682, 791, 845, 853, 855
Tracing wheel, 118, 306, 327, 526, 643, 650, 682, 791, 845, 853
Trade, 18, 27
Triangles, 601
Tricot, 727, 774, 793, 795-798
Trimmings, 591
True bias, 7, 9, 231, 248-249, 251, 253, 257, 260-261, 265, 269, 287, 499-500, 506, 509
Tuck
  bodice, 83, 117, 120-121, 173
Tweed, 18

U
Undercollar, 210, 214, 218, 221, 223, 227-228, 232, 527, 538, 554, 560, 563, 588-589, 593, 597, 866, 870
Utility, 440, 659, 694, 897

V
Value, 45
Velcro, 418, 420, 442, 807
Victoria's Secret, 29
Vionnet, Madeleine, 499
Vogue, 807

W
Waist:
  fold, 796
Warp, 7-8, 269, 727
Weave, 7, 539
Weaving, 8
Weft, 7-8, 269
Welt pocket, 573, 587-588, 615, 620, 871
Western pocket, 702, 704
Wholesale, 19
Wholesale price, 19
Windows, 17
Wool, 18, 482
Workroom cost, 19
Woven, 7-8, 28, 154, 249-250, 291, 540, 581, 591-592, 595, 727, 784-786, 792
Woven fabrics, 7-8, 154, 249-250, 591, 784-785, 792
Wrist measurement, 263, 354, 365, 391, 750

Y
Yarn
  fabric from, 7
Yarns, 7, 727
Yoke
  front neck, 169
Yokes, 167-183, 274, 311-312, 314, 400-401, 517, 881
Young Men's, 573, 579

Z
Zippers, 678, 807, 891